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REPORT

OF THE

BOARD OF EDUCATION

OF THE

State of Connecticut

SUBMITTED TO THE GOVERNOR

MAY 15, 1897

TOGETHER WITH

The Report of the Secretary of the Board

HARTFORD, CONN.
Press of The Case, Lockwood & Brainard Company
1897

MEMBERS

OF THE

State Board of Education

1897

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CONTENTS

	Page
REPORT OF THE BOARD OF EDUCATION	vii
REPORT OF SECRETARY	1–304*
GENERAL STATISTICS	3
FINANCIAL STATEMENT	5
Statistics	5
Receipts	5–9
School Fund	6
Town Deposit Fund	6
Local Funds	7
Taxation	7
Voluntary Contributions	7
EXPENDITURES	9–12
Administration	9
Running Expenses	10
Permanent Improvements	11
Libraries and Apparatus	11
Indebtedness	11
Interest	11
ENUMERATION, REGISTRATION, AND ATTENDANCE	14
Statistics	14
Enumeration	15
Registration	16
Attendance	16
CHILD LABOR	18
Enforcement of Law, table	20
Prosecutions	22–27
Report of Giles Potter	28–32
W. S. Simmons	33–36
M. A. Warren	36–39
E. C. Andrews	40, 41
TEACHERS	41–54
Statistics	41
Supervision	44
Teachers' Meetings	45
State Examinations	45–50
Teachers' Certificates	46
Courses for Teachers	50
SCHOOLS	54–95
Statistics	54
High Schools	55–58
Evening Schools	58–61
Kindergartens	61–63

Page
Normal Schools 64–84
    New Britain, Report of Marcus White . . 74–77
    Willimantic, G. P. Phenix . . . 77–83
    New Haven, A. B. Morrill . . . 83, 84
Schools in County Homes 85–90
Private Schools 90–94
Arbor Day 94
East Haven Building 95
SCHOOLHOUSES AND LIBRARIES 96–127
    Statistics 96
    School Libraries 96
    Public Libraries 99–127
WOMEN'S VOTING 128, 129
SCHOOL ORGANIZATION AND ADMINISTRATION . . . 129
TOWN DEPOSIT FUND 131–141

REPORT ON THE CONDITION OF HIGH SCHOOLS

I

Resolution of General Assembly of 1895 — Topics dealt with — Methods of gathering information 144
TABLE I *General* — Towns having high schools — Classes — Number in each class — Number of teachers — Number in each course — Graduates — Graduates who went to college — Expenses — Building — Name of principal . . 145–147
II *Organization* — Admission — Promotions — Examinations — Apparatus — Students from out of Town — Number of graduates — Graduation exercises . . . 148–152
III *Science* 153–161
IV *English* 162–167
V *English Literature* 168–173
VI *History* 174–178
VII *Government* 179–183
VIII *Modern Languages* 184–188
IX *Latin* 189–194
X *Greek* 195–199
XI *Mathematics* 199–204
XII *Courses of Study* — Hartford — Killingly — Meriden — Rockville — Stamford — Thompsonville — Willimantic—New Haven 205–218
XIII *College Entrance Requirements* — Amherst — Harvard — Mount Holyoke — Wellesley — Wesleyan — Williams — Yale — Sheffield Scientific School 218–220
XIV *High School Admission Questions* — Arithmetic — English Grammar — Geography — History 221–229*
XV *Rules and Requirements* — Teachers — Scholars . . 228*–231*
XVI *The Function of the High School* — W. B. Ferguson — Isaac Thomas — F. E. Burnette — W. R. Jones — Geo. H. Tracy — H. D. Simonds 232*–243*

II

Supply, Distribution, Attendance, Support — Supply — Number of schools — Number and population of towns having high school — Number and population of towns having no high school — Distribution by counties — Map — Attendance — Number of scholars — Registration — Per cent. who fall out — Support — Expense — Cost per capita — Buildings — Condition 244*-248*

Page

III

Government and Administration — Law authorizing town high school committees — Towns organized under law — Law authorizing district high schools — Towns organized under law — Law authorizing consolidated towns to maintain high schools — Towns organized under this law — Officers — Duties — Composition of boards — Appointment of Teachers — Salaries — Powers of boards 249*–253*

IV

Organization and Courses of Study — School day — Towns having one session — Reasons for one session — Hours of work — Admission age — Promotions 253,* 254*

Courses of Study — Schools having a four-years course — Schools having a three-years course — Schools having a two-years course — Schools having a one-year course — Classes — Plan of work — Supervision . 255,* 256*

Subjects — Names of courses — English — English literature — History — Science — Modern languages — Latin — Greek — Mathematics — Discipline — Schools not useful — Training — Endeavor to construct business courses — Trades — Industries of locality 257*–263*

V

Teachers — Number of teachers — Average number of pupils to a teacher — Teachers not tested — College graduates — New teachers — Government — Teachers' tenure — Promotions — Scale of salaries — Salaries of women — Salaries of principals — Pay of teachers — Influence of superintendent — Teaching as distinguished from examination — Questioning 263*–267*

Methods and Purposes of Teaching — Why Latin is taught — Indirect advantages of Latin — Translation — Derivations — Grammar — Interpretation — Inconsistency of claiming all advantages for Latin — Retained because easy to examine — All advantages gained in other ways — Greek — Modern languages — Teachers of modern languages — English language — Literature — History — Adherence to text-books — Methods of teaching 267*–275*

Examinations — Count in making up rank — In a flourishing condition — Tests — Examination age — Results of examination — No extension of examinations 275*–277*

VI

Particular Schools — I, Small school — Town system — Promotions from grammar schools — Entrance examinations — Number in school — Decrease from year to year — Number of teachers — Salaries — Programme — Plan of work — Time spent on each subject — Time of study — Latin — Greek — Number in defunct languages — Translations — Mathematics — English — Literature — Science — Modern languages — History — Marking system — Aim of marking system — Marking for discipline — Order — Information card 277*–288*

II, Larger school — Admission of scholars — Hours of school — Scholars in favor of one session — Programme — Government — Marking system — Marking for scholarship — Marking for deportment — Tone of school — Dropping scholars — English — Science — History — Mathematics — Latin — Greek 288*–294*

VII

Reconstruction of Course of Study — Improvement in primary schools — No change in high schools — High schools not organic part of public school system — No studies from high school studies — Class of children who leave at 14 — Class whose education terminates with high school — Interest of teachers in classical course — Separation of classical and non-classical courses — Cannot be carried on successfully in the same school — English substituted for Latin — Modern languages — Science — Suggestions 294*–301*

Page

VIII

Extension of Higher Education — School population accommodated — Schools too large — Towns having free public high school — High schools enough for all children — High school not possible in small town — Expense — Suggestion of law 301*–304*

APPENDIX 227–362
Statistical Tables 230–282
Explanations 227
Receipts and Expenses 230–246
Scholars 247–255
Teachers 256–264
Schools, Schoolhouses, and Libraries . . . 265–282
Enumeration by Districts, October, 1895 . . . 283–292
Amounts paid for Libraries 293
Table showing Enforcement of Attendance Law . . 294–296
Table showing Enforcement of Labor Law . . 297–299
Questions used at State and Normal School Examinations 300–312
Public Acts relating to Education, 1895 . . . 313–317
Special Laws relating to Schools, 1895 . . . 317–319
State Map of Connecticut as an aid in Geography . 320–330
Meteorological Observations in Schools . . . 331–336
Teaching of English in High Schools . . . 337–344
List of School Visitors 345–362

REPORT

OF

THE BOARD OF EDUCATION

TO THE GOVERNOR.

ATTENDANCE.

In 1886 was enacted the law forbidding child labor in factories, and upon this board was imposed the duty of enforcing it. In 1887 the law was so amended that agents appointed under the amended law could compel children to attend school. This compulsion consisted in enforcing the existing law requiring parents to cause their children to attend regularly. The step thus taken by the legislature was a distinct advance. The agents appointed under this law and the permanent agent of the board are diligent and faithful. They go into parts of the state especially assigned to each. They visit and inspect factories, they visit schools and examine the records, they confer with, advise, and assist teachers, committees, and town school officers. They also collect information concerning schools and their condition which the board needs in the prosecution of its legal obligation "to improve the public schools."

The large territory and great number of children assigned to each does not permit as frequent visits and as thorough canvasses as a complete enforcement of the law requires.

The reports of these agents, found on pages 28–41, contain much valuable information.

It is worthy of especial note that in the year ending July 1896, more has been accomplished than in any preceding year. The increase in average attendance in public schools has in the five years last past overtaken the increase in enumeration notwithstanding extensive withdrawals to private schools. Still from every quarter come deep and constant complaints, showing the magnitude of the evil of irregular attendance which these agents are called upon to abate. This irregular attendance is the greatest impediment which education has to encounter. Defective and uncertain attendance continually kept up not only interferes with the child's progress, but is attended with a dissipation of mind most unfavorable to learning when the child is in school. Such irregularity is less the result of necessity than of the want of appreciation of the benefit of regular attendance to the progress of the child. The work of making the schools the steady homes of the children during the few years that they can attend, is the important duty which the state, by the labor and attendance laws, has laid upon this board. Without doubt, this state stands pre-eminently first in the character of these laws, and in the efficiency of their enforcement.

STATE EXAMINATIONS.

In 1884 was passed the first law relating to state certification and examination of teachers. The law was entirely permissive, and local boards were not obliged to accept these certificates.

There was adopted and put into operation by the board a scheme under which all applicants were examined, and, if successful, granted a general certificate of qualification to teach. In 1888 this scheme was replaced by an amended scheme which required of all candidates some evidence of preparation to teach. In 1895 these certificates, by law, relieved the holders from examination in any district in which they were hired.

The object of these examinations is to secure trustworthy evidence of fitness to teach. While there is a law requiring local examinations, these examinations do not raise the standard of teaching nor keep out the inefficient or untrained. Whether disregarded willfully or negligently, the administration of the law relating to examinations is lax, and is an open door to the unqualified and disqualified. In the years since the law was enacted about 2500 persons have been examined, and in the past year 136 certificates have been granted. A list of certificates is kept in the office of the board.

The total number of papers read in the year has been about 6,485.

The work which these examinations entail has been large and yet has doubtless been of great advantage to the state. There has been created a sentiment that a state certificate is a valuable credential, and many towns and districts have already adopted the rule that only holders of these certificates shall be employed.

EVENING SCHOOLS.

In 1886 evening schools were first established under the law, and in 1893 the law was so amended as to place upon this board the duty of compelling illiterates between 14 and 16 to attend these schools. The agents who enforce this law have visited these schools to the end of ascertaining their fitness for the particular purpose prescribed in the law. This duty has added to their activities a particularly useful sphere. These schools, however, have not been attended by as many as are shown by inspection of factories to be unable to read and write.

NORMAL SCHOOLS.

For the training of teachers a normal school was first established in 1851 at New Britain. In 1883 a new building was completed, and in 1891 another building, called the Annex, was added.

In 1889 another school was opened at Willimantic, and in 1893 a building was completed.

In 1893 a third school was opened at New Haven, and in 1895 a third building was completed. The buildings at Willimantic and New Haven were constructed by this board without the assistance of a special commission, and the discharge of the additional duties attending this work considerably increased the necessary expenses of the board. These three buildings have cost the state about $350,000.

Seven hundred students can be instructed in these schools, and there are now in attendance 512.

To insure that the work which has been so generously promoted by the state shall be sound and well done, it is not sufficient to test daily the school boy or girl; the candidate for the teacher's office must be instructed, trained, and tested. The teacher ill-prepared or wholly unprepared wastes the time and energy of the scholars and does imperfect work with an ignorant spirit. In order to secure good instruction in a school, there must be a teacher far superior to the scholars in respect of education. To form a teacher for the simplest elementary school a period of training is necessary, and to give opportunity for this training is the function of the normal schools.

An educated and skillful teacher is a conscious and unconscious influence for good in this commonwealth; while an untrained and unskillful, even if educated, teacher is an injury to youth, and has no place in a school to which children must, willing or unwilling, go. To the taxpayers, who contribute more than $2,000,000 annually to educate the children of the state, it is common fairness and justice that the money should give the best education,—an education which the times demand and the money warrants.

HIGH SCHOOLS.

We desire to call especial attention to the report of the

Secretary of this Board upon the high schools of this state which is transmitted herewith. We hope that this report will receive the public attention which it deserves.

The chief aims of a high school should be (1) to practice boys and girls in thinking about men and things, (2) to develop the ability to keep the attention on difficult subjects and in particular the ability to read with understanding difficult books, (3) to exercise pupils in expressing themselves both orally and in writing, and (4) to awaken the tastes and ambitions of the intellectual life.

Whether a school is accomplishing these aims cannot be determined by merely ascertaining what studies are being there pursued. Some studies are better adapted to these purposes than others; but any subject may be so taught as to accomplish very little in any of these directions. It is assumed by many that if science is being taught, great intellectual profit is certain. What is said in the report of the Secretary of the Board about the methods of teaching science which now prevail in some of our high schools shows the falseness of such an assumption. The memorizing of science books affords no more intellectual training than the memorizing of Latin conjugations. Sometimes the facts learned have a possible value, but often even so much as that cannot be said. In some of our high school recitation rooms it is possible to hear parrot-like repetitions from science books, which mean nothing to the scholars, and sometimes very little to the teacher.

It is equally unsafe to highly estimate a school, merely because much time is there given to the study of history. History lessons, as given in our high schools, are commonly nothing more than repetitions of facts and stories. Very often the facts learned are of no real importance from any rational point of view. But even if the matter learned is well-selected, the mere memorizing of facts, whether from one book or many books, affords little intellectual discipline.

On the other hand, a high school that is to accomplish those aims which we have designated as the chief aims of a good school, will undoubtedly give much time both to science and to history.

The mere information gained in a high school is generally of little value in after life. But it may be worth a great deal to any boy or girl to acquire the power of thinking about men and things. This power is to be acquired by practice.

In many fields of science, and especially in physics, there is an opportunity for widely-varied exercises in independent thinking. Fortunate is the boy who spends a large part of his school time in the study of science, provided his teacher understands that the value of the study is determined not by the information acquired, but by the amount and intensity of the thinking done.

Many subjects of history may also, in the hands of a good teacher, be made the means of developing in boys and girls their utmost powers of thought. The power to weigh the evidence for and against a certain view of facts, and to intelligently criticise human testimony, is a power of great value to its possessor. It need not be so rare as it is in common life, if teachers would skillfully lead their pupils to practice historical criticism.

Again, no study is better worth while than a study of human nature, and nothing more broadening to the mind than a thoughtful observation of the way in which men have acted, both as individuals and in masses, amid different surroundings and under the sway of different ideas. A teacher who could, for example, so stimulate the imagination of boys and girls as to inspire in them a sympathetic insight into the feelings of an Athenian of the time of Pericles would profoundly alter the subsequent intellectual life of those boys and girls. They could never be the same after the discipline of making the great effort necessary to sympathetically appreciate the fundamentally different ideas of the men of past civilizations about religion, politics, and other aspects of life.

It is a mistake to suppose that there is no time for thorough critical imaginative work in history. If history were properly taught, many matters which now occupy the attention of teachers would not need to concern them at all. Were children once thoroughly interested in some men of a certain time, the anecdotes which are now laboriously memorized would be read for amusement. Until children's imaginations are awakened, history is merely a dry chronicle, and will only be learned under the pressure of classroom drill. But when the men and women of any period become alive in the minds of pupils, and history becomes stirring drama, facts are remembered without effort.

Education should develop not only the power to think, but also the power to read books. The development in any boy or girl of ability to understand difficult books, and to skim easily and rapidly the meaning of lighter books, opens up grand possibilities for a stronger and richer life. This ability can only be won by much practice intelligently directed. In a well-organized system of education a large part of the time and thought of teachers will be spent in securing from all pupils regular energetic reading, including both rapid reading of easy books and slow, thoughtful reading of difficult books.

Education should also develop the power to use good English, and to make one's thoughts reach the minds of other people. This power is not to be developed by the writing of occasional compositions on set subjects. The needed practice must form a part of the daily work of the school. Moreover, the scholars must somehow or other be stimulated to write and talk under natural, wholesome conditions. They must have something to say with which they hope to interest other people. Such a state of mind can be secured by a good teacher. It is possible, for example, with a class in science or history to assign different topics to different pupils for independent investigation and oral or written report. Some of our best teachers are now doing this in such a way as to create interest and even enthusiasm among their pupils.

No high school can wisely be expected to bestow the special information or dexterities needed in the various pursuits of practical life, for these may best be acquired by a special apprenticeship. No high school, on the other hand, can be justly regarded as successful unless it increases the efficiency of its pupils in their subsequent trade, business, or profession. A high school will inevitably increase the efficiency of any boy in his calling in life, no matter what that may be, if it develops his power to think, his power to read books, and his power to express his thoughts.

It would be, however, a narrow conception of education which should limit its aims to the creation of money-making ability. It is also the function of a high school to afford every boy and girl in the community an opportunity to receive the elements of a liberal education. The ability to obtain all kinds of material luxury must, in any sound philosophy, be ranked below the capacity to share the high, even if austere, joys of the intellectual life. It should be the inspiring purpose of every high school teacher to secure for the after-lives of pupils the influence of refined tastes and aspirations, and the elevated pleasures which come of interest in great problems and of habits of intellectual effort.

We have thus briefly stated what we believe to be the aims which should control those who direct the work of the high school, in the hope that we may thus lessen the possible misunderstandings of our criticisms on the present condition of secondary education. We admit that there is much intelligent teaching and much good studying done in high school classes here and there throughout the state. But we feel that if the energies of our high schools were thoughtfully and rigorously concentrated on the sort of work which we have outlined, those schools would be profoundly transformed and radically improved.

The great obstacle to an improvement of our high schools lies in the dominating influence of the college preparatory departments.

Only about one in fifteen of those who enter the high schools of this state afterwards goes to college. If any of the fourteen are badly educated, the fact is not demonstrated through any accepted test. If, however, the one who takes the college examination does not pass this examination, his school is thought to be tried and found wanting. It is therefore natural that the best teachers should be set by the principals to teach the small college classes. This, of itself, would be bearable. The existing evils result largely from the fact that college examinations are adapted to test the amount of memorizing that has been done, rather than the intellectual power that has been acquired. The college classes have to be got ready for an examination — not educated. They can best be prepared, as things now are, by securing the memorizing of lessons through the tests of the oral recitation, and by a skillful mechanical drill.

We cannot justly criticise the purposes or methods of those who are engaged in preparing boys and girls for college. Their work is laid out for them by the college authorities. It is, however, unfortunate that most high school principals and most of the best teachers should be perforce accustomed to narrow ideals of education. From this it results that the thousands of scholars who are not going to college are also set to memorizing lessons instead of being wisely educated.

Our high school authorities cannot at present materially change the methods of preparing children for college examinations. But it is an imperative need, that a radically different ideal of education should be adopted for the benefit of those who cannot hope to go to college. They cannot even be wisely permitted to pursue the same studies as the college classes. Their time for education is very brief. None of it can be spared for the study of dead languages and advanced mathematics.

A certain small amount of algebra is needed in the elementary study of some branches of science. All that will ever be used by those who are not going to college can be taught in a few weeks. For such scholars the time spent in learning devices for solving unusual algebraic equations is entirely wasted. They might better be set at work solving well-selected puzzles of various kinds.

It is true that algebra lessons, in so far as they require individual thinking for the solution of difficult problems, may constitute a valuable discipline. But as algebra is actually taught, it is for most of the scholars merely a mechanical drill. A lot of problems are given which are practically alike, and the scholars are at the outset shown how to do them by the teacher, or rather, in most cases, by the text-book itself. Moreover, the discipline to be obtained from independent work over problems, which is about all the discipline to be derived from the study of algebra, can be much better secured in a thorough study of science problems. The problems found in text-books on algebra are simply ingenious puzzles, entirely uninteresting in themselves, and most of the scholars never make any serious attempt to think out the solution of them. Science-problems, on the other hand, can be made so interesting that scholars are eager to solve them, and can be easily adapted to the differing abilities of the scholars.

It is doubtless true that an acquaintance with the meaning of a few Latin roots is of value for purposes of English philology. It is also true that a certain part of the grammatical analysis practiced in the study of Latin is of use to the student of English grammar. It is possible also that the translation of Latin may by skillful teaching be made an exercise in English composition. But all the good accomplished in these ways by the study of Latin may be more effectually and economically accomplished by exercises especially selected for those purposes. A knowledge of the meaning of important Greek and Latin roots can be taught in a short time in the course of a judicious elementary study of English words. So much grammar as is of real value in the understanding and use of the English language can be taught without the study of Latin. Exercises in using English can be devised which are much more beneficial than translations from Latin. Indeed, in nearly all Latin classes there is actually very little good practice in the use of correct and elegant English. The teacher is satisfied if the translation shows an understanding of the Latin, without demanding that the Latin be rendered into really good English sentences. The influence of Latin work on English style often is rather injurious than beneficial.

Whatever may be our views about the value of Latin as a collegiate study, we cannot justify the teaching of Latin to those who are never to go beyond the high school. The time spent by Latin classes in learning declensions and conjugations and the minutiæ of Latin syntax may be justified by the necessities of the case for those who intend to become thorough Latin scholars. For any others such a use of precious time is entirely unjustifiable. Nine-tenths, at least, of what is laboriously learned during the first two or three years of Latin study must be quite useless to those who pursue Latin no further. Unless a man is going to use Latin, the knowledge how to conjugate *moneo* or decline *musa* has no possible value, either for his practical career, or his intellectual life.

It is much easier to prepare children for an examination in Latin, Greek, Algebra, and Geometry, than it is to train them to think in a scientific spirit about men and things, or than it is to kindle their historical imaginations, or than it is to refine and develop their literary tastes, or than it is to inspire in them lasting intellectual aspirations. As soon as we insist that this more difficult work shall be attempted, we shall find that we need our most cultured and most thoughtful teachers for it. But there will be no considerable supply of such teachers until there is an eager demand for them. We shall after a time get teachers who can do this kind of work, if we make it worth the while of able men and women to prepare themselves to do it.

We cannot hope to even move toward a better secondary education until high school authorities general recognize the need of a radical reform of our present high school system.

GEORGE M. CARRINGTON,
WILLIAM G. SUMNER,
EDWARD D. ROBBINS,
ANTHONY AMES.

REPORT OF THE SECRETARY.

To the Board of Education of the State of Connecticut:

Your Secretary respectfully submits his thirteenth annual report.

This report covers the period from July 14, 1895, to July 14, 1896.

The report is arranged under the following heads:

- 1 General Statistics
- 2 Financial Statement
  - (*a*) Receipts
  - (*b*) Expenditures
- 3 Scholars
  - (*a*) Enumeration
  - (*b*) Registration
  - (*c*) Attendance
  - (*d*) Child Labor
  - (*e*) Prosecutions
  - (*f*) Instruction, Attendance and Employment of Children
  - (*g*) Report of Giles Potter
  - (*h*) Report of W. S. Simmons
  - (*i*) Report of M. A. Warren
  - (*j*) Report of E. C. Andrews
- 4 Teachers
  - (*a*) Supervision
  - (*b*) Teachers' Meetings
  - (*c*) State Examinations
  - (*d*) Holders of Elementary Certificates
  - (*e*) Holders of Honor Certificates
  - (*f*) Courses for Teachers.
- 5 Schools
  - (*a*) High Schools
  - (*b*) Evening Schools
  - (*c*) Kindergartens
  - (*d*) Normal Schools
    - 1 New Britain
    - 2 Willimantic
    - 3 New Haven
  - (*e*) Schools at County Homes
  - (*f*) Private Schools
  - (*g*) Arbor Day
- 6 Schoolhouses and Libraries
  - (*a*) School Libraries
  - (*b*) Public Libraries
- 7 Women's Voting
- 8 Organization for School Administration
  - (*a*) Town System
  - (*b*) District System
    - Act of 1855
  - (*c*) Special Charters
- 9 Town Deposit Fund
- 10 Report on Condition of High Schools.

The Appendix contains:

- 1 Statistical Tables, 1895–6
  - (*a*) Receipts
  - (*b*) Expenses
  - (*c*) Scholars
  - (*d*) Teachers
  - (*e*) Schools
  - (*f*) Schoolhouses and Libraries

(*g*) Enumeration for 1895
(*h*) Amounts paid for Libraries
2 Table showing enforcement of Attendance Law
3 Table showing enforcement of Labor Law
4 Questions used at State and Normal School Examinations
5 General Laws relating to Schools passed in 1895
6 Special Laws relating to Schools passed in 1895
7 State Map of Connecticut as an Aid to the Study of Geography in Grammar and High Schools, by William M. Davis
8 Meteorological Observations in Schools, by Robert DeC. Ward
9 The Teaching of English in High Schools, by Samuel Thurber
10 List of School Visitors

The accuracy and consequent value of the various tables which constitute so large a part of the following report are dependent upon

(1) The painstaking and accuracy of the various district committees, school officers, and teachers who gather the facts for transmission to the State Board of Education.

(2) The care with which they are compiled and arranged for publication.

Not less than 2,500 persons are concerned in collecting the original material which forms the basis of these tables. Most of the material is accessible and easily verified. Some is based upon estimate, and varies in value with the character of the persons estimating.

Under the second head, these returns have been compiled and tabulated for fourteen years by Mr. A. J. Wright, the clerk in this office, and have all the elements arising from experience and intelligent interest.

To measure the value of these tables, it must be noted that *statistical* is not synonymous with *numerical*. It is a matter of convenience that our facts are placed in tabular or numerical form. The occurrence of figures is not a mark of statistical information. The number of scholars, the number of schools, and the number of dollars expended are expressed in figures, but it is with scholars, with schools, and expense that we are dealing. We are weighing facts no less interesting because they are numerically stated. The facts are not valuable by themselves; they must be analyzed, arranged, and explained. Thus used, they make possible intelligent experiment, and justify or condemn our present action.

In this State we have tried an experiment — the free education of all the children in the State. This experiment was begun within the memory of living men, for not until 1868 were the schools of Connecticut in spirit and in truth free to all. Has our experiment succeeded or failed? What is the reply of the children who obtain the beginnings of education in the 1,600 schoolhouses of the State?

Glorying in what we believe to be the utility and success of schools free to all, we need to inquire what of effort and responsibility their growth and progress demand.

Shall there be adopted a modern and workable system, which will give better schools and more efficient administration?

Shall we raise the quality of our education by requiring preparation for the work of teaching?

Shall we extend the advantages of higher education to all the children of the State?

These are three of the questions which confront the people of this commonwealth and are vital to the children.

This and preceding reports furnish facts which bear upon all these questions.

GENERAL STATISTICS

The following statistics are of general interest:

Population of Connecticut, 1895 (estimated)	806,323
Number of children between 4 and 16 years of age	174,529
Number of pupils enrolled in the common schools	141,485
Increase	2,603
Percentage of increase	1.87
Enrolled per capita of population	17.54
Number of schools	1,563
Number of departments	3,436
Average daily attendance	96,925
Increase	712
Percentage of increase	.70
Ratio to enrollment	68.50
Average number of days the schools were kept	187.47
Number of schoolhouses	1,633
Value of all public school property	$8,829,146.02
Value per capita of population	10.94
Value per capita of average attendance	91.09
Number of teachers	
Males, winter	409
Females, winter	3,299
Total	3,708

Males, summer	361
Females, summer	3,361
Total	3,722
Percentage of male teachers	10.3
Average monthly wages of teachers	
Males	$84.65
Decrease	.93
Females	42.34
Increase	.46
Revenue	
From permanent funds	$169,542.55
From state taxes	261,664.50
From local taxes	1,968,170.33
From other sources	101,763.14
Total	$2,501,140.52
Percentage of revenue derived from	
Permanent funds	6.78
State taxes	10.46
Local taxes	78.69
Other sources	4.07
Expenditure	
For new buildings	$383,014.82
For libraries and apparatus	22,342.82
For running expenses, including salaries of teachers and superintendents	1,979,402.09
For other expenses	412,071.56
Total	$2,796,831.29
Expenditure per capita of population	
For running expenses	$2.45
Total expenditure	3.46
Daily cost of education per pupil	
For running expenses	10.8 cents
For all purposes	15.3 cents
Amount of permanent invested funds	$3,054,541.34

There were in 1895–6, 1,563 schools and 3,436 departments under 3,708 teachers with accommodation for 148,000 scholars.

The number of scholars on the registers was 141,485, and the average number in attendance was 96,925. The schools were open an average of 187 days in the year.

The cost of the schools was $2,796,831.29. The towns and districts were taxed to the amount of $1,968,170.33. The average cost for each child in average attendance was $24.90. Under every head of expense there has been an increase.

Financial Statement

Summary of Statistics, 1895–6

Dividend per child from School Fund	*$ .75
Income of School Fund distributed	130,832.25
Amount paid for schools from state tax	261,664.50
Income from Town Deposit Fund	31,795.23
Income from local funds	6,915.07
Amount raised for schools by town tax	1,259,660.70
Increase for the year	64,521.82
Amount raised for schools by district tax	708,509.63
Increase for the year	53,332.61
Amount of voluntary contributions for schools	4,881.76
Amount for schools from other sources	96,881.38
Total amount received for public schools from all sources	2,501,140.52
Increase for the year	42,866.23
Amount expended for teachers' wages	1,701,659.99
Increase for the year	80,476.26
Amount expended for fuel and incidentals	230,927.19
Increase for the year	30,997.63
Amount expended for repairs of school buildings	111,334.30
Increase for the year	1,665.50
Amount expended for libraries and apparatus	22,342.82
Increase for the year	1,940.54
Amount expended for new schoolhouses	383,014.82
Increase for the year	74,956.61
Amount expended for other school purposes	347,552.17
Increase for the year	21,684.93
Total amount expended for public schools	2,796,831.29
Increase for the year	211,721.47
Estimated value of school property in the state	8,829,146.02
School district indebtedness of the state	2,844,002.29
Cost of superintendence of schools	46,814.91
Cost of new schoolhouses	200,871.11
Number of districts that raised a tax during the year	136

Receipts

The several sources of income are permanent investments, taxation, and voluntary contributions.

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*The sum of $15,648.90 was paid to the School Fund from the State treasury to enable the Fund to pay at this rate.

Permanent investments include the School Fund, Town Deposit Fund, and local funds.

The total sum received from all the above sources by the 168 towns and districts was $2,501,140.52.

PERMANENT INVESTMENTS

School Fund.—On the 30th of September, 1896, the income of the School Fund was invested as follows :

TABLE I

Bonds and mortgages	$1,670,000.74
Real estate	163,173.86
Bank stock	167,147.61
Cash	7,726.76
Total	$2,008,048.97

In October, 1895, the count of children between 4 and 16 years of age showed 174,529. The income from the school fund, $115,183.35, was not adequate to the payment of 75 cents for each enumerated person. The sum of $15,648.90 was drawn from the treasury under Chapter CCXXXVIII of the Acts of 1893, and thus 75 cents per capita was paid to the towns. The total amount thus distributed was $130,832.25. This sum is 5.2 per cent. of the total receipts for schools. The actual income of the School Fund was 4.6 per cent. of the total receipts.

In Table vii on page 9 will be found the income of this fund since 1866.

Town Deposit Fund.— The several towns hold the principal of this fund, amounting as returns allege, to $754,972.34. The amount originally deposited with the towns was $763,661.83. The interest for the year 1895–6 is reported to be $31,795.23.

The following table gives the reported income since 1866 :

TABLE II

Report for Year	Income	Report for Year	Income	Report for Year	Income
1866	$48,078.92	1877	$47,665.00	1888	$38,835.65
1867	47,951.72	1878	44,538.92	1889	37,044.67
1868	44,979.34	1879	44,983.66	1890	35,068.83
1869	43,985.75	1880	43,994.35	1891	35,584.95
1870	44,883.94	1881	43,713.44	1892	35,255.93
1871	45,650.19	1882	42,979.23	1893	33,873.69
1872	45,167.37	1883	43,937.52	1894	33,702.01
1873	45,715.80	1884	42,156.28	1895	33,593.36
1874	45,452 58	1885	42,089.06	1896	33,288.80
1875	46,003.03	1886	40,387 06	1897	31,795.23
1876	46,534.97	1887	39,350.07		

On pages 132–139 will be found the amounts of this fund held by the several towns of the state as reported in 1896.

Local Funds.— The principal of the local fund is said to be $282,451.03, and the income $6,915.07. The principal of most of these funds was given before schools were maintained by taxation.

The following table shows the interest accruing from these funds since 1869:

TABLE III

Report for Year	Income	Report for Year	Income	Report for Year	Income
1869	$8,919.15	1879	$10,967.86	1888	$7,723.20
1870	12,300.34	1880	10,723.67	1889	7,968.50
1871	7,920.77	1881	11,141.74	1890	7,589.45
1872	9,627.23	1882	7,718.56	1891	7,839.16
1873	11,348.05	1883	8,582.13	1892	8,344.70
1874	12,196.45	1884	9,310.94	1893	8,815.39
1875	16,064.71	1885	8,553.16	1894	9,280.49
1876	15,614.79	1886	8,305.80	1895	7,615.93
1877	12,562.54	1887	8,455.48	1896	7,639.22
1878	12,754.62			1897	6,915.07

The amount of all these permanent invested funds is $3,054,541.34.

TAXATION

State Tax.— From the State Treasury there is paid to the towns, $1.50 for each enumerated person. The amount paid was $261,664.50.

Town Tax.— $1,259,660.70 was raised by the 168 towns for school purposes. This is $64,000 more than was raised last year, and is 50.3 per cent. of the total receipts for schools. The amounts raised since 1866 will be found in Table vii, page 9.

In ten years there has been an increase of $500,863.

District Tax. — 136 of the 1,258 districts were taxed for the support of schools. The amount raised was $708,509.63, which is 28.3 per cent. of the whole revenue for schools.

In Table vii, on page 9, will be found the sums annually derived from this tax since 1866.

Voluntary Contributions.— In 1896 there were gifts generally applied to the running expenses of the schools and to libraries amounting to $4,881.76. This sum is noticeably less than for any year since 1892, and is a return to the average for the years 1875–1891.

The following table will show the annual gifts since 1875:

TABLE IV

Report for Year	Voluntary Contributions	Report for Year	Voluntary Contributions	Per cent. of total Receipts
1875	$6,637.89	1886	$5,865.46	. . .
1876	6,881.26	1887	4,348.05	. . . .
1877	4,599.11	1888	6,844.44	. . . .
1878	4,755.00	1889	4,138.89	. . . .
1879	5,956.87	1890	4,503.88	. . . .
1880	4,616.78	1891	5,513.57	. . . .
1881	5,870.33	1892	7,641.57	. . . .
1882	5,050.05	1893	54,154.10	2.38
1883	5,025.53	1894	61,753.70	2.87
1884	3,758.10	1895	199,587.57	7.95
1885	4,329.01	1896	19,866.04	0.80
		1897	4,881.76	0.19
Total			$436,578.96	

Other Sources.— From miscellaneous sources including tuitions, came $96,881.

The amounts grouped under this head since 1890, are as follows:

TABLE V

Report for Year		Report for Year	
1890	$76,836.27	1894	$86,133.91
1891	74,535.51	1895	174,004.48
1892	68,238.94	1896	163,339.08
1893	164,834.71	1897	96,881.38

The following is a summary of receipts under the several heads with the rates which each bears to the total sum raised for school purposes:

TABLE VI

		Per cent. of sum raised
From Permanent Investments		
*School Fund	$130,832.25	5.2
Town Deposit Fund	31,795.23	1.3
Local Funds	6,915.07	$\frac{3}{10}$
From Taxation		
Town Tax	1,259,660.70	50.4
District Tax	708,509.63	28.3
State Tax	261,664.50	10.4
From Voluntary Contributions	4,881.76	$\frac{2}{10}$
From other sources, tuitions, etc.,	96,881.38	3.9

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* Including $15,648.90 from State Treasury.

The ratio of property valuation appropriated for schools was 4.99 mills on the dollar.

From taxation is derived 89.1 per cent. of the support of schools, and from permanent investments 6.8 per cent.

Since 1866, the amounts received from the above sources, together with the per cent. which each constitutes of the total receipts for school purposes, are as follows:

TABLE VII

Year	School Fund	Per cent.	District Tax	Per cent.	Town Tax	Per cent.	State Tax	Per Cent
1866	$136,471 94	19.3	$317,937.37	45.0	$93,726.10	13.2	....	...
1867	132,972.40	13.5	466,931.90	47.4	149,680.99	15.2	....	....
1868	136,015.00	13.0	467,804.77	44.8	160,347.35	15.3	.. ..	...
1869	124,082.00	9.7	491,420.61	38.7	415,318.26	32.7	....	....
1870	125,407.00	8.4	498,846.09	33.6	568,387.50	38.3	....	....
1871	128,468.00	8.4	410,708.11	27.2	641,837.76	42.6	....	....
1872	131,748.00	9.1	485,523.56	33.5	642,194.11	44.5	$65,874.00	4.5
1873	132,848.00	8.5	499,555 19	32.3	598,873.44	38.8	199,272.00	12.0
1874	133,528 00	8.2	502,500.80	31.1	669,856.88	41.5	200,292.00	12.3
1875	148,220.60	8.6	463,775.19	22.7	668,167.13	41.9	202,119.00	12.6
1876	135,189.00	8.6	399,834.65	25.6	711,167.98	45.5	202,783.50	12.9
1877	137,261.00	9.1	349,949.89	23.2	697,103.26	46.2	205,891.50	13.6
1878	138,475.00	9.1	362,128.54	23.9	682,407.59	45.2	207,712 50	13.7
1879	124,585.20	8.9	341,018.81	24.4	635,328.58	45.6	207,642.00	14.9
1880	112,188.00	7.5	416,306.33	28.0	649,987.83	43.8	210,352.50	14.1
1881	100,611.70	6.7	393,007.82	26.5	670,146.35	45.2	215,596.50	14.5
1882	87,721.20	5.0	382,515.80	22.0	760,105.40	43.8	219,303.00	12.6
1883	112,096.50	7.1	452,616.96	28.9	840,365.39	48.4	224,193.00	14.3
1884	112,950.75	6.4	484,343.55	27.8	810,253.93	46.6	225,901.50	13.0
1885	120,855.20	6.9	525,119.36	30.2	764,688 09	44.0	226,603.50	13.0
1886	114,124.20	6.8	448,005 33	26.9	758,797.83	45.6	228,249.00	13.7
1887	114,945.00	6.4	499,804.42	27.8	825,554.24	46.0	229,890.00	12.8
1888	116,199.00	6.6	453,483.69	25.9	844,901.14	48.2	232,398.00	13.2
1889	117,932.25	5.9	570,660 69	28.6	941,881.01	47.3	235,864 50	11.8
1890	119,430.75	5.9	580,010.79	28.7	953,890.88	47.3	238,861.50	11.7
1891	120,930.75	6.0	550,898.68	27.4	976,211.51	48.5	241,861.50	12.0
1892	123,039.75	5.4	581,012.59	25.6	1,054,372.46	46.5	246,079.50	10.8
1893	125,856.75	5.8	535,017.01	24.9	1,042,769.62	48.5	251,713.50	11.7
1894	127,092.75	5.0	568,983.23	22.6	1,144,666.09	45.6	254,185.50	10.1
1895	127,941.75	5.2	655,177.02	26.6	1,195,138.88	48.6	255,883.50	10.4
1896	130,832.25	5.2	708,509.63	28.3	1,259,660.70	50.3	261,664.50	10.4

EXPENDITURES

The sum paid for school purposes in the year 1895–6 was $2,796,831.29, an increase of $211,721.47. Of this increase $74,956.61 is for schoolhouses.

School expenses are classed as follows :

(1) Administration
(2) Running expenses
(3) Permanent improvements
sites, buildings, repairs,
(4) Payments on indebtedness
(5) Interest
(6) Libraries and apparatus

Administration.—The amount expended for administration was $46,814.91. This represents the cost of superintendence and such other official activities as are authorized or enjoined by law.

Expense of this class has increased steadily since 1892, as the following table will show:

TABLE VIII

1891	$33,174.58	1894	$35,283.92
1892	32,386.91	1895	39,215.29
1893	34,716.32	1896	44,950.59
		1897	46,814.91

There are in the state eight school superintendents, whose aggregate salaries are about $20,000. There are a few supervising principals who combine the duties of supervision and teaching. More than half the expense under this head is paid to acting visitors who are by law required to visit each school twice in a term.

The names of acting visitors will be found on pp. 345–362 of the appendix. A list of superintendents and supervising principals will be found on pp. 44–45.

Running Expenses.—Running expenses comprise teachers' wages, fuel, and incidentals.

The amount expended for these purposes is $1,932,587.08 which is 69 per cent. of the whole expense for schools.

The average daily cost of schooling a child for a year, excluding all outlay except that specifically classed under this head, is 10.8 cents.

As the number of schools increases, the total of teachers' wages advances.

In 1894–5, teachers received $1,621,183.73 and in 1895–6 they received $1,701,659.99.

$42.34 a month, or about $10 a week, is an average of the wages received by women, and is largely increased by the exceptional salaries of a few. Probably a majority of teachers receive less than $8 a week. At $8 a week, the annual salary is $288, if the school is open the time required by law, that is, 36 weeks.

The following table shows that there has been for several years a gradual increase in the wages of women:

TABLE IX

	Increase in average attendance	Increase in schools*	Increase in teachers' wages	Average teachers' wages per month	
				Men	Women
1891	1,274	25	$38,614.68	76.24	39.34
1892	647	63	39,345.41	77.11	39.84
1893	583	74	57,278.19	83.69	39.48
1894	1,363	40	58,666.07	86.98	40.64
1895	5,231	65	62,771.44	85.87	41.48
1896	4,727	102	73,035.06	85.58	41.88
1897	712	98	80,476.26	84.65	42.34

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* By schools is meant departments.

Permanent Improvements.— Sites, new schoolhouses, and repairs are classed under this head.

For these purposes was paid $494,349.12, made up of $383,014.82 for new schoolhouses and sites, and $111,334.30 for repairs.

New buildings constituted 13.7 per cent. and repairs 3.9 per cent. of the whole expenditure for schools.

The number of buildings and the annual expenditure since 1891 is as follows:

*TABLE X

Report of	No. Buildings	Cost
1891	10	$261,423.06
1892	20	307,830.92
1893	6	216,580.96
1894	12	248,232.19
1895	20	464,107.01
1896	12	308,058.21
1897	12	200,871.11
Totals	92	$2,007,103.46

Libraries and Apparatus.— This item increases steadily, as Table xi shows. The number of libraries to which this money goes is also rapidly increasing.

TABLE XI

	No. Libraries			No. Libraries	
1891	364	$16,443.14	1895	484	$18,824.55
1892	383	15,121.33	1896	564	20,402.28
1893	398	15,426.86	1897	663	22,342.82
1894	461	15,180.65			

Payments on Indebtedness.— The reports show that $544,347.63 has been used to cancel indebtedness. The amount thus applied in all towns cannot be precisely stated, because in several towns the town indebtedness is not separated from school indebtedness.

Interest.— There was paid in the year 1895–6 about $110,000.00 for interest charges.

The ratio which each of these several items of expenditure bears to the total expenditure is exhibited in the following table:

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* This table gives the annual expenditure or outlay, and not the actual cost of the buildings when completed.

TABLE XII

Administration	1.7
Running expenses —	
Teachers' wages, etc.	69.0
Permanent improvements	17.7
Library and apparatus	0.8
Other objects	6.8
Interest	4.0

A summary of the expenditures is as follows:

TABLE XIII

Administration		$46,814.91
Running expenses —		
Teachers' wages	$1,701,659.99	
Fuel and incidentals	230,927.19—	1,932,587.18
Permanent Improvements —		
Sites and buildings	$383,014.82	
Repairs	111,334.30—	494,349.12
Library and apparatus		22.342.82
Payments on indebtedness		*544,347.63
Interest		†110,000.00
Other objects		190,737.26
Total		$2,796,831.29

The following table gives expenditures under the various heads for the years since 1866, and the per cent. each constitutes of the total expenditure for schools:

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* Not included in $2,796,831.29. † Estimated in part.

TABLE XIV

Report of Year	Teachers' Wages	Per Cent.	Fuel and Incidentals	Per Cent.	New Buildings	Per Cent.	Repairs	Per Cent	Other Objects	Per Cent.
1866	$421,137.92	70.4	$84,464.90	14.1	$62,353.50	10.4	$29,515.87	4.9	....	...
1867	482,677.50	67.3	63,421.32	8.8	73,212.35	10.2	38,789.62	5.4	$56,522.29	7.8
1868	557,193.22	57.8	64,606.19	6.7	196,453.28	20.4	49,471.84	5.1	92,200.75	9.5
1869	609,658.05	55.3	62,183.96	5.6	276,901.14	25.1	51,781.32	4.6	97,746.85	8.8
1870	695,539.25	54.3	77,090.60	6.0	305,631.72	23.8	63,555.81	4.9	131,782.99	10.3
1871	785,680.04	48.4	101,086.94	6.2	494,604.41	30.5	55,713.69	3.4	176,247.48	10.8
1872	833,759.96	55.6	98,238.44	6.5	370,369.73	24.7	70,005.64	4.6	117,148.21	7.8
1873	888,871.89	58.1	110,202.90	7.2	319,025.55	20.8	65,224.56	4.2	137,169.37	8.9
1874	959,229.40	64.9	128,588.05	8.7	226,705.78	15.3	53,960.87	3.6	100,862.89	6.8
1875	1,021,714.07	60.1	127,055.01	7.4	294,228.11	17.3	93,863.83	5.5	153,044.13	9.0
1876	1,057,242.19	68.0	140,130.42	9.6	135,135.46	8.7	77,544.46	4.3	134,269.17	8.6
1877	1,085,290.05	70.9	133,343.89	8.7	95,758.63	6.2	68,860.09	4.5	138,480.14	9.0
1878	1,058,682.28	70.1	134,125.12	8.8	98,698.80	6.5	73,516.83	4.8	135,655.57	8.9
1879	1,041,040.43	69.1	112,237.12	7.4	124,944.06	8.2	67,715.24	4.4	152,897.07	10.1
1880	1,015,882.91	73.7	128,362.43	9.3	37,227.65	2.7	71,346.14	5.1	115,648.79	8.4
1881	1,011,729.94	71.8	118,036.64	8.3	87,047.08	6.1	60,814.27	4.3	121,300.31	8.6
1882	1,025,322.66	69.4	119,392.50	8.6	111,904.78	7.5	65,819.65	4.4	144,774.38	9.7
1883	1,056,268.25	68.0	136,058.20	8.7	146,586.39	9.4	71,288.91	4.5	130,310.84	8.3
1884	1,094,580.61	60.3	145,303.89	8.0	327,408.32	18.0	85,062.22	4.6	146,162.55	8.0
1885	1,130,863.35	63.6	140,757.88	7.9	238,963.98	13.4	102,137.66	5.7	150,881.45	8.4
1886	1,166,879.13	62.9	135,720.40	7.3	293,212.83	15.8	86,384.99	4.6	158,489.05	8.5
1887	1,188,056.04	66.3	127,644.60	7.1	216,401.15	12.0	77,338.42	4.3	171,164.26	9.5
1888	1,227,412.60	69.4	148,786.24	8.4	117,860.67	6.6	104,911.91	5.9	156,207.22	8.8
1889	1,264,061.02	69.6	149,322.73	8.2	124,598.70	6.8	88,068.47	4.8	176,438.40	9.7
1890	1,291,472.88	65.0	149,016.64	7.5	226,190.45	11.3	105,619.00	5.3	196,624.30	9.9
1891	1,330,087.56	62.6	182,465.33	8.5	261,423.06	12.3	98,971.33	4.6	234,449.04	11.0
1892	1,369,432.57	63.1	158,788.33	7.3	307,830.92	14.2	98,870.99	4.5	217,034.64	10.0
1893	1,426,711.16	63.8	176,372.64	7.8	216,580.96	9.6	121,870.90	5.4	277,581.51	12.4
1894	1,485,377.23	63.4	200,838.80	8.5	248,232.19	10.6	109,775.87	4.6	281,946.69	12.0
1895	1,548,148.67	58.5	191,586.83	7.2	464,107.01	17.5	110,417.82	4.1	309,542.82	11.7
1896	1,621,183.73	62.7	199,929.56	7.7	308,058.21	11.9	109,668.80	4.2	325,867.24	12.6
1897	1,701,659.09	60.8	230,927.10	8.2	383,014.82	13.6	111,324.30	3.0	347,552.17	12.4

The following table gives the receipts and expenses for schools since 1866, with the average cost of schooling children:

TABLE XV

Year	Receipts	Expenses	Cost for each child enumerated	Cost for each child registered	Cost for each child in attendance
1866	$704,986.70	$716,203.79	$5.94	......	$13.79
1867	983,806.32	962,728.21	8.14	......	17.98
1868	1,043,086.71	1,102,170.19	8.44	$10.49	18.08
1869	1,269,152.83	1,278,827.01	10.23	12.05	20.97
1870	1,484,016.35	1,621,387.76	11.83	13.41	23.69
1871	1,503,617.62	1,496,980.95	11.70	13.23	23.98
1872	1,442,669.01	1,528,440.07	10.95	12.56	22.95
1873	1,542,489.20	1,477,442.72	11.60	13.44	24.08
1874	1,612,947.64	1,697,573.97	12.08	13.52	23.98
1875	1,592,858.11	1,552,583.85	11.81	14.17	23.22
1876	1,560,565.06	1,529,181.52	11.54	13.10	22.13
1877	1,506,218.67	1,510,222.56	10.99	12.63	20.87
1878	1,509,158.85	1,506,477.06	10.90	12.59	20.52
1879	1,390,972.54	1,375,880.46	10.05	11.65	19.14
1880	1,481,680.93	1,408,374.74	10.57	12.37	20.14
1881	1,482,024.39	1,476,690.95	10.31	12.41	20.43
1882	1,563,750.30	1,553,065.16	10.69	12.90	21.46
1883	1,733,392.88	1,813,486.11	9.94	12.33	19.85
1884	1,737,923.36	1,777,277.04	10.21	12.47	19.86
1885	1,735,384.21	1,852,221.45	10.31	12.40	19.72
1886	1,663,019.17	1,791,666.21	10.35	12.54	19.73
1887	1,793,369.19	1,768,371.06	10.76	13.12	20.89
1888	1,749,708.04	1,813,823.04	10.90	13.40	20.82
1889	1,990,336.88	1,984,254.47	11.17	13.83	21.34
1890	2,015,667.11	2,123,839.46	11.69	14.72	22.26
1891	2,009,383.58	2,167,079.18	11.53	14.42	22.05
1892	2,266,182.19	2,234,544.03	12.30	15.40	23.77
1893	2,146,226.99	2,341,351.43	12.47	15.70	24.26
1894	2,509,728.91	2,642,627.70	12.85	16.01	23.81
1895	2,458,274.29	2,585,109.82	13.34	16.39	23.66
1896	2,501,140.52	2,706,831.20	13.83	17.06	24.90

In ten years there has been expended for schools in this commonwealth the munificent sum of $22,457,831.48. Of this sum $18,391,006.28 has been raised by taxation.

Indebtedness. — The reported indebtedness is $2,844,002.29.

The sums reported under this head since 1892 are as follows:

TABLE XVI

1892	$1,755,530.32	1895	$1,843,031.78
1893	1,873,645.86	1896	2,682,127.29
1894	1,887,227.73	1897	2,844,002.29

Value of School Property.— The estimated value of school property is as follows:

TABLE XVII

Report of Year	Estimated Value	Report of Year	Estimated Value
1892	$6,655,054.81	1895	$8,042,411.12
1893	7,237,001.12	1896	8,450,600.09
1894	7,508,536.49	1897	8,829,146.02

Enumeration, Registration, and Attendance

Summary of Statistics, 1895-6

Number of children between 4 and 16 years of age, October, 1895	174,529
Increase for the year	3,940
Number of scholars registered in winter	122,304
Increase for the year	1,464
Number of scholars registered in summer	117,203
Increase for the year	3,063
Number registered who were over 16 years of age	4,849
Increase for the year	345
Number of different scholars in public schools	141,485
Increase for the year	2,603
Number of enumerated children in other schools than public schools	23,830
Increase for the year	2,524
Number of children between 4 and 16 years of age in no school as shown by the returns of school visitors	23,061
Decrease for the year	351
Number between 4 and 16 years of age in no school as shown by enumeration returns of October, 1895	28,384
Increase for the year	1,356
Average attendance in public schools in winter	99,976
Increase for the year	1,503
Average attendance in public schools in summer	93,874
Decrease for the year	80

Percentage of the whole number registered in the year as compared with the whole number enumerated in October, 1895	81.06
Percentage of children registered in schools of all kinds	94.72
Percentage of those enumerated registered in winter	70.07
Decrease for the year	.76
Percentage of those enumerated registered in summer	67.15
Increase for the year	.25
Percentage of average attendance in winter	81.74
Increase for the year	.29
Percentage of average attendance in summer	80.09
Decrease for the year	2.22
Average attendance in winter as compared with number enumerated in October, 1895	57.28
Decrease for the year	.44
Average attendance in summer as compared with number enumerated in October, 1895	53.78
Decrease for the year	1.29
Number of districts in which the average attendance for the year ending July 14, 1896, was eight or less	178

In the tables on pp. 247–255 of the appendix will be found the enumeration, registration, and attendance by towns, and on pp. 283–292 of the appendix the enumeration by districts in 1895.

Enumeration.— The following table gives the count of persons between 4 and 16 years of age for ten years beginning with 1886, and the annual increase for the same years :

TABLE XVIII

	Enumeration.	Increase.
1886	153,260	1,094
1887	154,932	1,672
1888	157,243	2,311
1889	159,241	1,998
1890	161,241	2,000
1891	164,053	2,812
1892	167,809	3,756
1893	169,457	1,648
1894	170,589	1,132
1895	174,529	3,940
Total average annual increase		2,126

The following are the ten towns showing the greatest increase in the school census taken in 1895 :

TABLE XIX

	Increase		Increase
Hartford	913	Danbury	223
New Haven	662	Meriden	215
Bridgeport	549	Torrington	203
Waterbury	354	New London	137
Norwalk	280		

REGISTRATION.

In six years the enrollment in public schools has increased as follows :

TABLE XX

	Increase		Increase
1891	2,400	1894	2,812
1892	2,066	1895	2,833
1893	2,266	1896	2,603
		Total	14,980

Since 1888 private schools have made returns. A detailed compilation for 1895–6 will be found on pp. 91–94 and a summary for five years is given below :

TABLE XXI

Report of Year	Registered	Average Attendance
1893	22,814	16,236
1894	23,939	16,455
1895	25,965	19,113
1896	25,678	18,986
1897	26,577	19,984

ATTENDANCE

The average attendance has increased in six years as follows :

TABLE XXII

Year	Increase	Year	Increase
1891	647	1894	5,231
1892	583	1895	4,727
1893	1,368	1896	712
		Total	13,268

The following comparative table shows the annual increase in enumeration, enrollment, and attendance for the six years beginning 1891 :

TABLE XXIII

Year	Increase in Enumeration	Increase in Enrollment	Increase in Attendance
1891 . . .	2,000	2,400	647
1892 . . .	2,812	2,066	583
1893 . . .	3,756	2,266	1,368
1894 . . .	1,648	2,812	5,231
1895 . . .	1,132	2,833	4,727
1896 . . .	3,940	2,603	712
Total . . .	15,288	14,980	13,268

The following table shows by counties increase of enumeration, registration, and attendance for 1895–6:

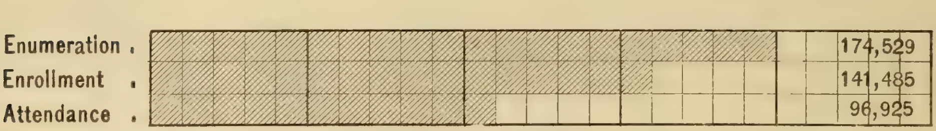
TABLE XXIV

	HARTFORD			NEW HAVEN			NEW LONDON			FAIRFIELD		
	Enumeration	Registration	Attendance	Enumeration	Registration	Attendance	Enumeration	Registration	Attendance	Enumeration	Registration	Attendance
Increase..	1,272	923	350	1,638	879	394	......	......	44	1,170	961	71
Decrease.	......	......	......	......	......	......	130	132	......	......	......	......

	WINDHAM			LITCHFIELD			MIDDLESEX			TOLLAND		
	Enumeration	Registration	Attendance	Enumeration	Registration	Attendance	Enumeration	Registration	Attendance	Enumeration	Registration	Attendance
Increase..	......	273	27	74	......	......	39	......	......	33	......	......
Decrease.	155	......	......	......	136	70	......	95	49	......	70	55

	STATE		
	Enumeration	Registration	Attendance
Increase............................	3,940	2,603	712
Decrease............................	......	......	......
Total increase................	3,940	2,603	712

The following graphic illustrates the relation between
(1) The number of children between 4 and 16.
(2) The enrollment in public schools and
(3) The average attendance in the public schools.



The following table gives enumeration, registration, and attendance since 1866, with percentages:

TABLE XXV

Report of the year	Average length of Schools in days	Enumerated	Registered		Different Scholars Registered	Per cent. Registered	No. in both Public and Private Schools	Per cent. in all Schools	Attendance		Per cent. of average Attendance
			Winter	Summer					Winter	Summer	
1866	......	114,825	78,149	71,603	....	.....	....	.....	57,131	51,751	47.41
1867	......	118,780	78,206	70,837	....	.....	....	.....	57,464	50,560	45.47
1868	......	120,884	80,148	73,865	....	.....	....	.....	57,117	52,299	45.25
1869	163.05	123,650	82,140	75,177	99,390	80.38	....	.....	59,489	53,645	45.74
1870	161.75	124,082	88,348	78,865	105,313	84.87	114,896	92.60	64,707	56,309	48.77
1871	168.51	125,409	94,092	83,192	110,640	88.19	119,944	95.64	66,902	58,348	49.13
1872	172.41	128,468	94,408	83,095	113,588	88.50	122,342	95.23	67,018	58,349	48.79
1873	173.34	131,748	94,787	83,874	114,805	87.14	123,834	93.99	67,599	58,113	47.70
1874	174.18	132,908	95,199	86,987	114,857	86.41	133,386	92.83	67,172	60,905	48.18
1875	176.29	133,528	99,550	89,674	119,298	89.34	127,720	95.65	71,433	63,052	50.35
1876	176.26	134,976	98,402	88,595	119,489	88.53	128,634	95.30	71,935	65,251	50.81
1877	178.13	135,189	98,923	89,832	119,106	88.10	128,922	95.36	74,369	66,621	52.14
1878	177.52	137,099	99,657	90,845	119,208	86.95	129,388	94.38	75,732	68,588	52.63
1879	178.47	138,407	100.288	91,433	119,828	86.56	130,937	94.60	77,218	69,912	53.15
1880	178.60	138,428	99,662	91,860	119,382	86.24	130,597	94.34	75,678	69,607	52.47
1881	179.02	140,235	100,596	90,614	119,694	85.35	132,337	94.37	78,421	68,672	52.44
1882	179.98	143,745	100,098	92,259	119,381	83.05	131,856	91.73	76,028	69,050	50.42
1883	179.66	146,188	101,759	92,475	121,185	82.90	134,084	91.72	77,041	69,636	50.16
1884	178.77	149,466	102,122	94,214	120,437	80.58	135,297	90.52	78,423	71,328	50.09
1885	179.55	150,601	103,921	97,499	123,280	81.85	137,860	91.53	80.075	74,787	48.80
1886	179.18	151,069	107,097	98,694	125,718	83.21	140,198	92.80	82,654	75,450	52.32
1887	179.74	152,166	107,213	99,166	125,539	82.50	140,714	92.47	82,949	76,719	52.46
1888	180.18	153,260	108,309	100,169	125,794	82.07	141,747	92.48	82,285	75,678	51.53
1889	179.08	154,932	109,550	101,889	126,055	81.36	143,234	92.44	83,856	78,341	52.34
1890	180.32	157,243	109,511	101,615	127,089	80.82	145,358	92.44	85,455	79,310	52.39
1891	182.51	159,241	110,476	102,703	126,505	79.44	145,571	91.41	86,275	81,038	52.53
1892	182.26	161,241	110,778	103,035	128,905	79.94	149,301	92.59	87,229	81,379	52.28
1893	182.30	164,053	109,214	102,661	130,971	79.83	152,448	92.92	87,527	82,247	51.74
1894	182.74	167,809	112,584	105,799	133,237	79.39	154,218	91.90	89,420	83,091	51.40
1895	182.92	169,457	116,116	110,172	136,048	80.28	157,509	92.94	93,607	89,366	53.98
1896	183.32	170,589	120,840	114,140	138,882	81.41	160,188	93.90	98,473	93,954	56.40
1897	187.47	174,529	122,304	117,203	141,485	81.06	165,315	94.72	99,976	93,874	55.53

CHILD LABOR

The laws relating to attendance and labor have been enforced by the compelling agents, Messrs. Giles Potter, W. S. Simmons, M. A. Warren, and E. C. Andrews.

There has been an increasing demand for the assistance and advice which the agents can render and they find it impossible to respond to all the demands made upon them.

In the past year a limited number of towns have been thoroughly canvassed and the returns of attendance obtained each month from the teachers. This system has been successful in compelling regular attendance.

The following table gives the work of the compelling agents for the year 1895–96 :

TABLE SHOWING THE WORK AND RESULTS IN TOWNS VISITED, YEAR 1895-96. TABLE XXVI

TOWNS	Cases Investigated	Visits to Schools	Visits to Families	Visits to Factories and Stores	Lawfully Absent from School			Unlawfully absent from School	Unlawfully Employed	Sent to School	Prosecutions		Truants	Sent to Connecticut School for Boys	Schoolrooms Inspected
					Disability	Want of Clothing	At work				Of Parents	Of Employers			
Andover															1
Avon	30	6	22	1	2		2	25		24					8
Berlin	4	1	3					4		4					
Bloomfield	60	8	14		3		14	13	13	13					
Bolton															4
Bozrah	9	3	3	2				7		7	3				
Bristol				12			28								
Brooklyn	103	14	42	3											
Burlington	40	15	48		4	6	2	55		57					
Canterbury	18	15	11		1		1	15	7	15	1				
Canton	64	21	63	1	7	7	3	47	1	46	3				
Colchester	21	4	9		1	4	1	14		14					
Columbia				1											8
Cornwall	38	13	11		3		15	8	6	8	2				
Coventry				7											11
East Granby	2	1	1					2		2					
East Hartford	8	6	6		1		1	6	3	6					
East Windsor				2			30	1	1	1					
East Lyme	14	18	10	1			1	10		10					
Ellington	1							1					1		12
Enfield				4			69								
Farmington	96	11	94	10	18	8	13	54	2	51					
Franklin	2	2	2					2		2					
Glastonbury	4	2	2	5	3		18	1		1					
Granby	8	2	4		2	2	1	1	1	1					
Griswold	142	23	54	9	19	10	1	15	6	15	1				
Hartford	3	1	1	17			115	1	1	1	1				
Hebron				1											10
Hartland	6	2	3		3										
Killingly	95	25	54	15							1	1			
Ledyard	23	4	8					20		3					
Lisbon	10	6	6					9		9	1				
Lyme	5	2	3				1	4		4					
Manchester				8			87								
Mansfield				3											14
Montville	72	20	39	5	8	6		31	6	31	7	3			
New Britain	449		224	18	33	2	307	139	17	136	17		11	3	
New Hartford	70	34	71	5	8	5	10	32	16	51		1			
New London				4											
Newington	34	4	7		8	3	15	8							
North Canaan	6		6					6	6	6					
Norwich	20	14	16	10	3	3		13	3	13		2			
Old Lyme	39	13	20					39		4	1				
Plainfield	86	25	44	9	15	5	1	29	4	29	2			3	
Plainville	2	2	2	4			8	2	2	2					
Plymouth				1			7								
Preston	12	12	9	2		3		9	2	9	5				
Putnam				9											
Ridgefield	8	2	4		1	3		4		4					
Rocky Hill	50	12	31				7	38		38					
Simsbury	39	15	39	2	1	1	1	37		31					
Southington				5			14	1	1	1					
Somers			1												13
Sprague	3	5	2	1	1			1		1					
Stafford	5	9	3	12	1			3	1	3					29
Sterling	31	6	18	2		1	3	20	9	20	1			1	
Stonington	12	6	11	4		4		6	1	6	3		1	1	
Thomaston	2	1	1	2			31	2		2					
Thompson				5											
Tolland	3	1	1	1				2		2	1				11
Torrington	34	6	28	11	6	7	68	27	9	28	2				
Union															6
Vernon	1	1	1	15				1		1					43
Voluntown				3											
Washington	17	4	11		1		5	11		11					
West Hartford	101	40	54		15	4	14	46	18	44					
Wethersfield	105	22	50		20	3	16	66	4	66	4				
Willington	7	2	2	1		7									9
Winchester	3	2	2		2			1			1				
Windham	88	23	66	14	11	4	5	25	11	25					
Windsor	1	1	3	3			10				1		1	1	
Windsor Locks				6			22	1							
Total 72 Towns	2,106	487	1,240	256	201	98	947	915	151	858	58	7	14	9	171

A summary of the work of the agents for five years is given in the following table:

TABLE XXVII

Report of	Labor			Attendance			
	Towns Visited	Establishments Visited	Establishments Inspected	Towns Visited	Cases Investigated	Families Visited	Prosecutions
1893	78	601	550	54	1,294	805	68
1894	76	572	531	58	1,631	1,057	76
1895	75	435	369	63	1,493	917	45
1896	75	493	418	73	1,448	641	36
1897	83	459	430	72	2,741	1,600	95

The tables on pp. 273–282, of the appendix, give the work of the agents in detail.

PROSECUTIONS

The following table gives information concerning prosecutions in the year 1895–6:

TABLE XXVIII — PROSECUTIONS DURING

Town	Child	Age	Nationality	Offense	Circumstances of Family
Bethel.........	Boy	10	American	Neglect to cause child to attend school	Well off
"	Boy	11	"	Neglect to cause child to attend school	" "
Bozrah........	Boy	10	....	....	
"	Boy	12	....	....	
"	Boy	11	....	....	
Canterbury....	Boy	11	....	....	
Canton.........	Boy	12	Irish	Neglect to cause child to attend school	Father intemperate
"	Girl	12	"	Neglect to cause child to attend school	Comfortable
"	Boy	12	"	Neglect to cause child to attend school	Well-to-do
Cornwall.......	Boy	12	American	Neglect to cause child to attend school	Rich
"	Boy	11	American	Neglect to cause child to attend school	Poor and shiftless
Darien	Boy	12	American	Neglect to cause child to attend school	Well off
Derby.........	Girl	10	Irish	Neglect to cause child to attend school	Mother dead, father intemperate
"	Boy	9	American	Child neglected	" "
Ellington.......	Boy	12	American	Insubordination and absence	Poor
Essex.........	Girl	13	American	Neglect to cause child to attend school	Comfortable
"	Girl	13	American	Truancy	"
Griswold	Boy	12	....	....	
Guilford........	Boy	11	American	Neglect to cause child to attend school	Well-to-do
Hamden.......	Girl	13	American	Neglect to cause child to attend school	Comfortable
"	Boy	12	Irish	Neglect to cause child to attend school	"
"	Boy	12	American	Neglect to cause child to attend school	Poor, father dead
"	Boy	13	American	Neglect to cause child to attend school	Comfortable
Killingly.......	Girl	12	....	....	
"	Girl	11	....	....	
Lisbon....	Girl	9	....	....	
Middletown ...	Boy	13	American	Neglect to cause child to attend school	"
Montville......	Girl	12	....	....	
"	Girl	13	....	....	
"	Boy	13	....	....	
"	Girl	12	....	....	
"	Girl	10	....	....	

THE YEAR ENDING AUGUST 31, 1896.

Days attendance at school during 12 months	Court	Results	Town
0	Justice of Peace	Fined $5 and costs. Total, $11	Bethel ....
67	" "	Fined $10 and costs. Total, $21	"
..	....	Fine and costs. Total, $8.10	Bozrah.........
..	....	Fine and costs. Total, $8.10	"
..	....	Fine and costs. Total, $8.10	"
..	....	Fine and costs. Total, $8.43	Canterbury ....
None since Sept., 1895,	Justice of Peace	Fine $1 and costs. Total, $12.46	Canton........
None since Sept., 1895.	" "	Fine $1 and costs. Total, $12.64	"
..	....	Discharged	"
..	Justice of Peace	Fine $3 and costs. Total, $13.85	Cornwall.......
..	" "	Fine $1 and costs. Total, $8.50	"
21	" "	Fine $3 and costs. Total, $11	Darien ....
100	City Court	Fine $5, not paid, committed to jail	Derby ....
..	"	Child committed to Temporary Home	"
0	Justice of Peace	Committed to Conn. School for Boys	Ellington......
47	" "	Judgment suspended, case nolled	Essex..........
47	" "	Committed to Industrial School	"
..	....	Fine and costs. Total, $11.63	Griswold.......
75½	Justice of Peace	Fine $3 and costs	Guilford........
57	" "	Fine and costs. Total $14	Hamden.......
73	" "	Fine $5 and costs	"
60	" "	Case continued under bonds to send child to school	"
120	" "	Fine $3, not paid, committed to jail	"
..	....	Fine and costs. Total, $7.65	Killingly.......
..	....	Fine and costs. Total, $12.06	"
..	....	Not guilty	Lisbon.........
43½	City Court	Fine $6 and costs	Middletown....
..	....	Fine and costs. Total, $10.11	Montville......
..	....	Fine and costs. Total, $10.11	"
..	....	Fine and costs. Total, $10.11	"
..	....	Fine and costs. Total, $7.14	"
..	....	Fine and costs. Total, $7.14	"

TABLE XXVIII—PROSECUTIONS DURING THE

Town	Child	Age	Nationality	Offense	Circumstances of Family
Montville......	Girl	11	....	....	
"	Boy	14	....	....	
"	Girl	13	....	....	
"	Boy	13	....	....	
"	Girl	13	....	....	
New Britain ...	Boy	11	American	Neglect to cause child to attend school	Comfortable
"	Boy	13	German	Neglect to cause child to attend school	Comfortable
"	Boy	13	English	Neglect to cause child to attend school	Father lazy
"	Boy	12	American	Neglect to cause child to attend school	Poor
"	Girl	13	English	Neglect to cause child to attend school	Well-to-do
"	Boy	13	Dane	Neglect to cause child to attend school	Poor, mother dead
"	Boy	12	Italian	Neglect to cause child to attend school	Poor, mother sick
"	Boy	12	English	Neglect to cause child to attend school	Father shiftless
"	Boy	10	German	Neglect to cause child to attend school	Poor
"	Girl	13	Swede	Neglect to cause child to attend school	Comfortable
"	Girl	13	Swede	Neglect to cause child to attend school	Well-to-do
"	Boy	13	American	Neglect to cause child to attend school	Comfortable
"	Boy	12	Irish	Neglect to cause child to attend school	Comfortable
"	Boy	11	Italian	Neglect to cause child to attend school	Comfortable
"	Boy	12	American	Truancy	Comfortable
"	Boy	11	Irish	Truancy	Poor, mother dead
"	Boy	12	English	Truancy	Comfortable
New Hartford..	Boy	12	Jew	Unlawfully employed	Comfortable
New Haven ...	Boy	14	Irish	Truancy	Mother poor, no father
"	Girl	12	Colored	Non-attendance	Comfortable
"	Girl	10	Colored	Non-attendance	Comfortable
"	Boy	12	Colored	Non-attendance	Comfortable
"	Boy	12	Irish	Truancy	Poor, father dead
"	Boy	10	Irish	Truancy	Poor, father dead
Norwalk........	Boy	11	Italian	Truancy	Poor, father dead
"	Boy	10	Italian	Truancy	Poor, father dead
Norwich........	Girl	12	....	....	
"	Girl	12	....	....	

YEAR ENDING AUGUST 31, 1896 — CONTINUED

Days attendance at school during 12 months	Court	Result	Town
....	....	Fine and costs. Total, $6.10	Montville......
....	....	Judgment suspended for 90 days. In charge of selectmen	"
....	....	Fine and costs, $11.26	"
....	....	Fine and costs, $11.26	"
....	....	Fine and costs, $11.26	"
....	....	Fine $3 and costs. Total, $13.64	New Britain....
....	....	Fine $3 and costs. Total, $13.64	"
30 since Sept., '95	Police	Fine $1 and costs. Total, $11.64	"
38 since Sept., '95	"	Judgment suspended	"
0 since Sept., '95	"	Fine $3 and costs. Total $14.24	"
....	"	Judgment suspended	"
....	"	Judgment suspended	"
....	"	Fine $2 and costs. Total, $12.64	"
....	"	Judgment suspended	
....	"	Judgment suspended	"
....	"	Judgment suspended	"
....	"	Judgment suspended	"
....	"	Judgment suspended	"
....	"	Fine $3 and costs. Total, $13.64	"
....	"	Committed to Conn. School for Boys	"
....	"	Committed to Conn. School for Boys	"
....	"	Committed to Conn. School for Boys	"
0	Justice of Peace	Fine $1 and costs	New Hartford..
30	City Court	Returned to Conn. School for Boys	New Haven...
15	" "	Parents placed under bonds to send child to school	"
30	" "	Parents placed under bonds to send child to school	"
6	" "	Child placed with a guardian and case nolled	"
25	" "	Committed to Conn. School for Boys. Appealed	"
75	" "	Committed to Conn. School for Boys. Appealed	"
156	" "	Committed to Conn. School for Boys	Norwalk ......
144½	" "	Committed to Conn. School for Boys	"
....	....	Fine and costs, $18.63	Norwich.......
....	....	Fine and costs, $18.63	"

TABLE XXVIII—PROSECUTIONS DURING THE

Town	Child	Age	Nationality	Offense	Circumstances of Family
Old Lyme	Boy	11	....	....	
Old Saybrook	Boy	13	American	Failure to cause child to attend school	Comfortable
Plainfield	Girl	11	....	....	
"	Girl	10	....	....	
"	Girl	5	....	....	
Portland	Boy	9	Fr. Canad'n	Truancy	Poor, mother unfaithful
"	Girl	11	"	Neglect of Parents and Truancy	Poor, mother unfaithful
"	Girl	8	"	Neglect of Parents and Truancy	Poor, mother unfaithful
"	Boy	12	Irish	Truancy	Father dead, mother inefficient
"	Boy	12	Irish	Truancy	Father industrious, mother dead
Preston	Girl	11	....	....	
"	Boy	13	....	....	
"	Boy	11	....	....	
"	Boy	9	....	....	
"	Boy	10	....	....	
Sterling	Boy	10	....	....	
Stonington	Girl	12	....	....	
"	Girl	12	....	....	
"	Boy	12	....	....	
Tolland	Girl	10	....	....	
Torrington	Girl	12	American	Neglect to cause child to attend school	Comfortable
"	Girl	12	German	Neglect to cause child to attend school	Comfortable
Waterbury	Boy	12	Irish	Truancy	Comfortable
"	Boy	13	German	Truancy	Comfortable
West Hartford	Boy	12	American	Truancy	Comfortable
Wethersfield	Boy	13	American	Neglect to cause child to attend school	Poor and shiftless
"	Girl	12	American	Neglect to cause child to attend school	Comfortable
"	Girl	10	Irish	Neglect to cause child to attend school	Comfortable
"	Girl	13	Irish	Neglect to cause child to attend school	Comfortable
Winchester	Boy	12	American	Truancy	Comfortable, mother an opium eater

During the year the local authorities in Stamford prosecuted in the city court nine parents for failing to cause their children to attend school regularly. In three of these cases fines from $1 to $5 were imposed; in one case the parent was discharged. The other cases were continued till the children had attended school regularly for a number of weeks when they were nolled.

YEAR ENDING AUGUST 31, 1896 — CONTINUED

Days attendance at school during 12 months	Court	Result	Town
..	....	Fine and costs, $7.85	Old Lyme......
56	Justice of Peace	Fine $1 and costs	Old Saybrook..
..	....	Sent to Temporary Home	Plainfield......
..	....	Sent to Temporary Home	"
..	....	Sent to Temporary Home	"
63½	Justice of Peace	Sent to Conn. School for Boys	Portland.......
40	" "	Sent to Temporary Home	"
95½	" "	Sent to Temporary Home	"
115½	" "	Sent to Conn. School for Boys	"
98	" "	Sent to Conn. School for Boys	"
..	....	Fine and costs, $8.22	Preston.......
..	....	Fine and costs, $9.63	"
..	....	Fine and costs, $11.47	"
..	....	Fine and costs, $8.27	"
..	....	Fine and costs, $8.27	"
..	....	Sent to Temporary Home	Sterling ....
..	....	Sent to Temporary Home	Stonington......
..	....	Fine and costs, $30.46	"
..	....	Sent to Conn. School for Boys	"
..	....	Fine and costs, $9.70	Tolland........
..	Borough Court	Judgment suspended	Torrington.....
..	" "	Judgment suspended	"
74	City Court	Sent to Conn. School for Boys	Waterbury.....
122½	" "	Sent to Conn. School for Boys. Appealed	"
..	Justice of Peace	Sent to Conn. School for Boys	West Hartford.
..	" "	Fine $1 and costs. Total, $8.24	Wethersfield...
..	" "	Fine $1 and costs. Total, $8.24	"
..	" "	Fine $1 and costs. Total, $6.48	"
..	" "	Acquitted, doubt as to age	"
..	Borough Court	Sent to Conn. School for Boys	Winchester....

Special reports of the agents, Giles Potter, W. S. Simmons, M. A. Warren, and E. C. Andrews are given and contain matter of much interest.

REPORT OF GILES POTTER

HON. CHARLES D. HINE,
Secretary of the State Board of Education:—

SIR:—According to the plan outlined a year ago, my services as agent of the Board during the twelve months ending August 31, 1896, were within New Haven, Fairfield, and Middlesex counties, except as requested to attend to a few cases of neglected children and to obtain information concerning some private schools in other counties.

The table on page 30 shows what towns were visited and indicates the work done in them. This work with slight variations was the same as I had done in former years and described in my reports.

The towns of Hamden and North Branford and the town school districts of Waterbury and the South school district of New Haven were thoroughly canvassed; others, as in former years, were visited chiefly to attend to special cases of non-attendance at school and to inspect establishments where children are employed.

Cases of absence from school, as shown by the marks on the registers, for which teachers stated lawful causes, are not included in the number investigated, except those in which want of clothing was the cause and those in which there was doubt concerning alleged disability.

The large number of cases of disability were due to the prevalence of some epidemic or some contagious disease at the time of my visits or during the preceding weeks of the school term. Cases of chronic disability are not numerous.

Want of shoes is included in want of clothing and is a very common cause of absence and irregularity in attendance. I have endeavored to see that such wants are supplied.

As a lawful cause of non-attendance working is the most common for children fourteen and fifteen years of age. In my general report on "Attendance," which I have already handed to you, there were given under this head the number of such cases only as were found on inquiry for children not attending school at the time of my visits to the schools. In my general report on "Labor, Establishments visited, etc.," the number of children from fourteen to fifteen years of age found employed is given. In the tabulation of this report those numbers are combined.

The amendment of the law concerning the attendance of children at school, which has been in force since August, 1895, while serving to make the law more simple and more easily understood, has made it much more difficult to enforce. When the law allowed children under fourteen years of age to be absent from school to work when they attended sixty or one hundred and twenty days in the year, it seemed to fix in some degree the limit which irregularity in attendance should not exceed. Now the question is asked, Is any absence from school of a child from eight to fourteen years of age allowable except for causes named in the law? The rules of boards of health frequently require children who are not sick to be kept from school, but absences in such cases cannot be regarded as violations of law. If a member of a family other than the child attending school is suddenly taken sick it may be reasonable that the child be kept from school to assist till other help can be provided. It does not appear that there are any other reasons, according to the law, as it now stands, why every child should not be in school every day and the entire day when the school is in session, unless we interpret "regularly" to mean not very irregularly, say seventy-five or eighty per cent. of the time. But neither the language of the law nor the purpose for which it was enacted indicate any such loose rendering. Therefore on account of the strictness of the law it has become necessary to report for the past year a large number of unlawful absences from school.

It now seems to be definitely settled and those who have the care of children are coming to realize that a child need not be kept from school an entire week to constitute an indictable offense.

Nearly all the children reported unlawfully employed were over thirteen years of age and had attended school as the law required before it was amended, so that their employment would not have been unlawful if the age for employment had not been changed from thirteen to fourteen years. Some of these children were found at work during the fall term of school and had been employed some time before the change in the law took effect and had proper certificates of school attendance. Near the end of the spring term of the schools many efforts were made by parents to secure employment for their children, so that they might not be idle during the vacation; and some children under fourteen years of age were employed. In many instances my attention was called to these violations of law as soon as the children left school. In all these cases the children were promptly discharged and returned to school on the parents and employers being notified of the conditions of the law. No employers were prosecuted, as in every case it appeared that they were ignorant of the law or had been deceived regarding the age of the child. Many of the children thus employed were found in stores and small establishments where not more than one or two children could be employed at any time.

TABLE SHOWING WORK AND RESULTS IN 53 TOWNS VISITED DURING THE YEAR 1895-6

	TOWNS	Cases Investigated	Visits to Schools	Visits to Families	Visits to Factories and Stores	LAWFULLY ABSENT FROM SCHOOL			Unlawfully Absent from School.	Unlawfully employed	Sent to School	PROSECUTIONS		Truants	Sent to Conn. School for Boys	Sent to Industrial School for Girls	Sent to Temporary Homes
						Disability	Want of Cloth'g	At Work				Of Parents	Of Employers				
1	Ansonia	....	....	....	13	....	....	40	....	....	....	....	....	....	....	....	....
2	Beacon Falls	....	....	....	2	...	....	....	....	....	....	....	....	....	....	....	....
3	Bethel	20	7	12	12	1	....	7	12	3	12	2	....	....	....	....	....
4	Branford	....	....	....	2	....	....	11	....	....	....	....	....	....	....	....	....
5	Bridgeport	18	16	14	42	2	....	285	13	3	13	....	....	3	....	....	....
6	Chatham	4	1	2	6	...	....	2	2	....	4	....	....	....	....	....	....
7	Cheshire	8	4	7	2	....	....	....	7	1	7	....	....	....	....	....	....
8	Chester	10	1	5	....	4	....	....	6	....	6	....	....	....	....	....	....
9	Clinton	1	....	1	....	....	....	....	1	....	1	....	....	1	....	....	....
10	Cromwell	....	....	....	1	...	....	1	....	....	....	....	....	....	....	....	....
11	Danbury	1	2	1	4	....	....	9	....	....	....	....	....	....	....	....	....
12	Darien	9	2	7	....	2	....	....	7	....	7	1	....	1	....	....	....
13	Derby	21	5	13	3	2	1	27	16	....	15	1	....	2	....	....	....
14	East Haddam	....	....	....	11	....	....	....	....	....	....	....	....	....	....	....	....
15	East Haven	5	1	2	....	....	....	1	4	....	4	....	....	....	....	....	....
16	Essex	2	2	2	2	....	....	3	1	....	....	1	....	....	....	1	....
17	Fairfield	1	2	1	....	....	....	....	1	1	1	....	....	....	....	....	....
18	Greenwich	....	3	....	2	....	....	12	....	....	....	....	....	....	....	....	....
19	Guilford	26	7	17	....	....	1	....	19	....	18	1	....	....	....	....	....
20	Haddam	21	12	9	2	5	5	6	14	1	14	....	....	....	....	....	....
21	Hamden	147	26	61	3	34	9	52	54	4	54	4	....	6	....	....	....
22	Huntington	....	....	....	16	....	....	36	....	....	....	....	....	....	....	....	....
23	Kent	6	2	4	....	....	....	1	4	....	4	....	....	....	....	....	....
24	Killingworth	5	1	2	....	....	....	1	4	....	4	....	...	....	....	....	....
25	Madison	15	5	7	....	....	4	3	12	....	12	....	....	...	....	....	....
26	Meriden	19	5	15	11	1	....	54	16	2	16	....	....	1	....	....	....
27	Middlefield	....	....	....	2	....	....	9	....	....	....	....	....	....	....	....	....
28	Middletown	23	6	21	6	7	....	63	16	2	16	1	....	....	....	....	....
29	Milford	6	2	3	2	....	....	4	6	....	6	....	....	....	....	....	....
30	Naugatuck	....	...	....	7	....	....	11	....	....	....	....	....	....	....	....	....
31	New Canaan	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
32	New Haven	160	39	121	41	15	18	267	103	22	103	....	....	11	4	2	....
33	New London	....	3	....	3	....	....	....	....	....	....	....	....	....	....	....	....
34	Newtown	5	9	2	2	....	....	...	3	1	3	....	....	....	....	....	....
35	North Branford	28	7	14	....	6	3	4	13	....	11	....	....	....	....	....	....
36	North Haven	4	2	3	....	1	....	....	3	....	3	....	....	....	....	....	....
37	Norwalk	19	17	13	14	3	2	52	14	....	14	....	....	3	2	....	....
38	Old Lyme	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
39	Old Saybrook	19	3	14	....	4	....	7	10	....	10	1	....	2	....	....	....
40	Orange	6	5	6	4	1	....	3	5	1	5	....	....	2	....	....	....
41	Oxford	6	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
42	Portland	31	6	19	2	3	2	19	23	2	17	....	....	7	3	....	2
43	Ridgefield	7	1	4	....	2	1	1	4	....	4	....	....	....	....	....	....
44	Roxbury	7	3	4	....	....	....	....	7	1	6	....	....	....	....	....	....
45	Salisbury	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
46	Saybrook	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
47	Seymour	...	....	5	....	....	....	21	....	....	....	....	....	....	....	....	....
48	Stamford	....	4	3	....	....	....	13	....	....	....	....	....	....	....	....	....
49	Wallingford		....	9	....	....	....	36	....	....	....	....	....	....	....	....	....
50	Waterbury	140	27	58	37	55	7	251	39	3	38	....	....	4	2	....	....
51	Watertown	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
52	Westport	....	1	....	4	....	....	2	....	....	....	....	....	....	....	....	....
53	Winchester	....	1	....	....	.. .	....	....	....	....	....	....	....	....	....	...	....
	Totals	800	245	485	258	148	53	1314	439	47	428	12	....	43	11	3	2

Cases of occasional truancy have not received much attention from me, but have been left for truant officers where such officers have been appointed. But I have endeavored to cause habitual truants to be committed to the institutions for such children.

I have caused twelve prosecutions of parents or persons having control of children for neglect to send their children to school. One person having control of a child 10 years of age was prosecuted twice. At first he refused to send the child to school, but after paying a fine of five dollars with costs of prosecution, he sent the child to school some days each week, but seldom all the days in the week. A second prosecution resulting in a fine and costs amounting to twenty dollars induced him to send the child to school every school day each week till the end of the year. In every case fines were imposed except in one which was nolled and the child was committed to the Industrial School for Girls. In two cases the defendants refused to pay the fines and were committed to jail.

In most cases of non-attendance or irregularity inquiries by teachers as to the cause of absence from school, or admonitions by school and truant officers as well as by an agent of the State Board of Education have caused the desired results without resorting to severe legal measures.

In the counties where I have been employed local authorities seem to have given more attention than formerly to this business. In Stamford on application of the Superintendent, Everett C. Willard, nine parents were prosecuted for not sending their children to school regularly. In one only of these cases was the defendant discharged. Fines were not imposed in all the others, but the desired results were secured.

Proprietors of manufacturing and mercantile establishments where children may be employed generally approve of the change in the law. They do not want to employ children under fourteen years of age. When they employed such children having certificates showing that they had attended school as the law then required, it was usually at the pathetic appeals of parents. These appeals have been continued through the past year often with false statements of the ages of the children.

In view of the circumstances of many of these parents I should oppose any further change in the law making the limit for employment higher than fourteen years and I would advise the removal of all restriction concerning employment when the schools are not in session.

I usually ask children fourteen and fifteen years of age whom I find employed where they attended school and something regarding their attainment. In New Haven, for instance, where the schools are arrayed in twelve grades, it is very seldom that a child of this class is found who has been in the twelfth grade and but very few in the eleventh. Most of them were in the eighth, ninth, and tenth grades. Many were in lower grades, and some have been found who never got above the third or fourth grades. Those from the lower grades are generally dull children. They can not learn well in the schools, but work well, but not so well as those who are more intelligent and better educated.

In view of these facts it seems to me that the best we can do for these children is to keep them in school regularly till they are fourteen years of age. It is of little use to try to compel children above that age to attend school when they prefer to work. But the law requiring the children to attend school till they are sixteen years of age unless employed at fourteen or fifteen, is beneficial, though not easy in all cases to enforce. It seems to permit children of those ages to attend irregularly. At least it is practically so regarded by some parents who keep their children from school as their convenience seems to require, or when they can get short jobs. The law would be improved if it required regularity in attendance on the part of such children when enrolled as members of the school.

The law requiring the establishment of evening schools has not been carefully regarded in all the towns to which it applies. The causes of this failure have been want of interest on the part of school officers and such persons as might be benefited by attendance at these schools. Where such schools have been maintained, the class of children required to attend, — to wit: those from fourteen to sixteen years of age who cannot read and write, — have generally complied with the law. But the compulsory feature of the law does but little in securing attendance at these schools. The class of children referred to is very small and as soon as they have learned to read and write a little they are no longer subject to the requirements.

Interest on the part of teachers and the co-operation of employers can make evening schools successful and beneficial. Last year there was a remarkable instance of this kind in New Haven where evening schools have been generously maintained and fairly attended. In the particular school referred to there were at the opening about fifty young Italians enrolled of ages from fourteen to twenty-one. In a few weeks the attendance was reduced to about one-fourth that number. The teacher then communicated with the employers of his pupils and secured their agreement to demand from each of their employes in the morning following a session of the school a paper showing that the holder was present at the session. Those who did not attend regularly were threatened with discharge. It did not appear that any were discharged, but the school at once had full attendance, which continued with almost perfect regularity till its close.

As another agent of the Board inspected these schools I did not visit them except to ascertain that those children whom the law required to attend were duly enrolled and were attending.

GILES POTTER.

REPORT OF W. S. SIMMONS

To Mr. Charles D. Hine,
Secretary of State Board of Education:

Sir—The following is a report of my work as agent of the Board for the year ending August 31, 1896:

Number of towns visited,		37
Number of cases of absence investigated,		821
Number of families visited,		434
Number of schools visited,		253
Number absent under legal excuses:—		
Mental or physical disability,	60	
Lack of clothing,	47	
At work legally,	14—	121
Number at work illegally,		50
Number absent illegally,		275
Number sent to school,		(*a*) 223
Number sent to Connecticut School for Boys,		1
Number sent to Temporary Home,		5
Number of schoolrooms investigated regarding ventilation,		171
Number of factories and stores visited,		140
Number of prosecutions of parents,		27
Number of prosecutions of employers,		6

(*a*) It will be seen that the number sent to school is fifty-two less than the number illegally absent from school. Of this number not sent to school thirty-five were in the town of Old Lyme, absent because of trouble regarding consolidation of districts. The difficulty being finally settled, these children, with the exception of those of one family, were sent to school. The family referred to was prosecuted a little later. This is noted elsewhere. The remaining seventeen children were in the town of Ledyard, where long distance to schoolhouse, together with local troubles over which your agent had no control, were the causes of absence. Later these children were entered at a private school.

Early in the school year a thorough canvass was made of the towns of Brooklyn, Killingly, Canterbury, Griswold, Lisbon, and Montville, by comparing school registers with enumeration lists, and by investigating cases of non-attendance thus brought out. Copies of the following blank were left with the teachers to be filled out and returned to me at the end of each four weeks, that the cases of irregular attendance in these towns might be followed closely:

CONNECTICUT STATE BOARD OF EDUCATION

Report of Attendance

Town, , District, , Department, , Teacher, , for the week ending , 189 . Fall term begins , 189 , ends , 189 . Winter term begins , 189 , ends , 189 . Spring term begins , 189 , ends , 189 . Name of parent or guardian, . P. O. address, . Name of each child, . Age of child, . Number of half-days present, . Number of half-days absent, . Number of times tardy, . Number of times dismissed, . Cause of absence, .

The teachers willingly complied with this request, but owing to the fact that work on other lines demanded so much of my time, the cases reported did not always receive the immediate attention which should have been given. However, the work was followed closely enough to show a marked gain in attendance over last year, and there is no doubt that this line of work thoroughly carried out would raise the average attendance in the schools.

ENUMERATION

In many districts care is exercised to have the enumeration taken correctly, but in others there is an indifference shown that amounts to criminal carelessness. When the agent is called to a town to take action regarding children who are not in school, it is expensive for the State as well as unpleasant for him, when his efforts prove fruitless because some of the children are found to have been beyond school age for several years. The following are a few of the instances which have led to the above statement:

One boy, enumerated as ten years old, was found to be living with his parents; but aged twenty-eight, and married.

"Katie," not in school, was found to be "Jane," attending school regularly.

Rosa, eleven years old was found to be twenty, and brother Alfred, aged twelve, could not be found, there never having been such a child in the family. Two sisters, enumerated as eleven and twelve, found to be sixteen and eighteen.

Three children, ages given nine, twelve, and fourteen, found to be eleven, sixteen, and eighteen.

Louis, enumerated ten, found to be twenty-three.

It is against this combination of ignorance and indifference that the agent has to work, and much time is spent without results.

INVESTIGATION OF SCHOOLROOMS REGARDING VENTILATION

In making the investigation of schoolhouses in Tolland County, every schoolroom has been visited, and where any means of ventilation has been used, whether mechanical, artificial, or an opening intended for ventilation, it has been noted on the plans. In the amount of air-space given no allowance has been made for furniture or fixtures. All stoves, registers, chimneys, and vent-shafts have been placed on plans from actual measurement.

TABLE SHOWING WORK AND RESULTS IN TOWNS VISITED.
YEAR 1895–6.

TOWNS	Cases investigated	Visits to Schools	Visits to Families	Visits to Factories and Stores	LAWFULLY ABSENT FROM SCHOOL			Unlawfully Absent from School	Unlawfully Employed	Sent to School	PROSECUTIONS		Sent to Connecticut School for Boys	Sent to Temporary Home	Schoolrooms investigated
					Disability	Want of clothing	At work				Of Parents	Of Employers			
1 Andover															1
2 Bolton															4
3 Bozrah	9	3	3	2				7		7	3				
4 Brooklyn	103	14	42	3											
5 Canterbury	18	15	11		1		1	15	7	15	1				
6 Colchester	21	4	9		1	4	1	14		14					
7 Columbia				1											8
8 Coventry				7											11
9 East Lyme	14	18	10	1			1	10		10					
10 Ellington															12
11 Franklin	2	2	2					2		2					
12 Griswold	142	23	54	9	19	10	1	15	6	15	1				
13 Hebron				1											10
14 Killingly	95	25	54	15							1	1			
15 Ledyard	23	4	8					20		3					
16 Lisbon	10	6	6					9		9	1				
17 Lyme	5	2	3				1	4		4					
18 Mansfield				3											14
19 Montville	72	20	39	5	8	6		31	6	31	7	3			
20 New London				4											
21 Norwich	20	14	16	10	3	3		13	3	13		2			
22 Old Lyme	39	13	20					39		4	1				
23 Plainfield	86	25	44	9	15	5	1	29	4	29	2			3	
24 Preston	12	12	9	2		3		9	2	9	5				
25 Putnam				9											
26 Somers				1											13
27 Sprague	3	5	2	1	1			1		1					
28 Stafford	5	9	3	12	1			3	1	3					29
29 Sterling	31	6	18	2		1	3	20	9	20	1			1	
30 Stonington	12	6	11	4		4		6	1	6	3		1	1	
31 Thompson				5											
32 Tolland	3	1	1	1				2		2	1				11
33 Union															6
34 Vernon	1	1	1	15				1		1					43
35 Voluntown				3											
36 Willington	7	2	2	1		7									9
37 Windham	88	23	66	14	11	4	5	25	11	25					
Total	821	253	434	140	60	47	14	275	50	223	27	6	1	5	171

VIOLATION OF CHILD LABOR LAW

Many cases of violation of the child labor law, when investigated, were found to have been caused through ignorance of the changes made in the law by the Legislature of 1895, when the age at which a child may be legally employed was raised from thirteen to fourteen. Ignorance of the law is no excuse, but where there had been no previous violation, and the manufacturer showed a disposition to comply with the new law by promptly discharging those illegally employed, no further action was taken.

Most of the manufacturers in this district, regardless of the statements made by parents, will not employ a child whom they believe to be under legal age, but there are others who do not hesitate to employ any child large enough to do their work, if they can protect themselves against the law by parents' certificates, or any means whereby the responsibility can be thrown on some one else.

If these cases are brought into court, the agent is confronted by the fact that he cannot ascertain from the parents the true place of birth, and thus obtain a copy of the records. In justice to the law-abiding manufacturer who has to compete with the man hiring younger help at cheaper rates, the law should be so amended that the employer must have, instead of parents' certificates of age, a certificate of age from the bureau of vital statistics of the town or country where the child was born. This amendment could cause but little trouble to those concerned, since a large part of these cases to which my attention has been called were children in families that have come from Canada.

W. S. SIMMONS.

REPORT OF M. A. WARREN

MR. C. D. HINE,

Secretary State Board of Education.

SIR,—A part of my work during the past year has consisted in inspecting factories and in enforcing school attendance. This work has been confined to the towns of Avon, Burlington, Canton, Farmington, New Hartford, Simsbury, West Hartford, and Winchester.

The one objection to the compulsory law is that it enforces attendance upon characterless schools. To illustrate: in the town of New Hartford are two villages, so near to each other as to be practically one, and in these villages are to be found three manufactories employing some youthful labor and three public schools with seven departments officered by teachers of varying ability. Twenty-two children were sent out of these mills and into these schools,—some, however, going to the parochial school, and one to a school in an adjoining town. Omitting any reference to the parochial school (except to say that the teachers heartily coöperated with the agent), it is pertinent to ask what gain the children have received in the transfer.

The town of New Hartford clings to the district system of school management, the three different schools being under separate control. There is, consequently, scant opportunity to employ in practice the principle of division of labor commonly known as gradation; from the school of advanced grade in one of the three districts the children of the other two are excluded; there is no course of study directing and unifying the efforts of the teachers; there is no gradation leading from the door of the humblest home to the diploma of the high school; the oversight, while it is kindly and intelligent, cannot be otherwise than infrequent, distant, and nerveless. While, therefore, the teachers may be doing all they can, they cannot in the nature of the case be parts of one well-directed, well-planned, well-pushed whole. The question is: Would not the children be better off in the mills than in the schools?

Take another illustration and this time from a town agricultural in character. Farming communities are quite apt to adhere to the district system; seldom does the district tax itself; the school is "run" with money received from the State or voted by the town; teachers' wages are low: persons employed as teachers are usually young ladies, often without experience and sometimes frequently changed. If, by chance, there be a number of well-grown boys in the school they are quite apt to divide the authority with the teacher. Visiting two Swede families in the town of Avon to inquire why six children were not in school the agent was met with protestations against subjecting children of tender years to the bullying of the bigger boys: clothing ruined; feelings outraged; teacher powerless. Inquiry for the district committee elicited the fact of his non-existence, the person appointed refusing to act; the authority had therefore gone to a man at a distance. Now, is it right to compel children to attend schools like these?

Again an illustration: in the town of Burlington is one school district which contains on the October enumeration 138 children. This district lays no tax and employs but one teacher! Some ten children were sent to school in this district by the agent. If half the children enumerated were in attendance, if the teacher be the very paragon of ability, the question remains, whether children would not better be at home than in school?

In the town of Simsbury were found two schools wholly worthless in character. Parents in disgust had withdrawn children from one or both schools. Most of the Simsbury delinquents were found in these two schools. The question is: Ought parents to be forced to send to schools where it is absolutely certain their children can learn nothing? The town has recently adopted town management; if now she will add town vigilance it is probable that this condition of things will not again recur.

The town of Farmington, to furnish a final instance, affords an illustration of how extremes may meet. The largest district maintains a graded school well-looked after,— the fences, outhouses, and the school buildings (except some parts of the main structure), in good condition; there is a high school where worthy work is done. The district next in size presents a front neglected in the extreme,— the fences, the school property, and the unsanitary condition of the premises are unworthy the community where originated the idea of sending missionaries to the heathen. In this district about fifty calls were made. But with what countenance can the State enforce attendance upon an institution which the community so distinctly discredits?

The following table shows the work done, as far as figures can show it. Some explanation of the items seems necessary.

"Cases investigated" refers to instances where the inquiries into the cause of absence were so continued as to leave no reasonable doubt that the cause is fairly well understood. Generally these investigations take place at the homes of the pupils, or in interviews with a parent elsewhere. Sometimes correspondence with a town clerk or other official has been necessary.

"Visits to families" will not always correspond with "cases investigated," because a visit may be several times repeated, or, on the other hand, a single visit may include more than one investigated case. A call upon a parent at his place of business or a letter written is counted under this heading.

"Visits to factories and stores" includes only such calls as had for their objects the discovery of the illegal employment of children.

"Disability" has in some cases been made to include children, especially young children, who, though otherwise strong, were unable in winter or in extreme weather at other seasons to go long distances to school.

"Want of clothing" is seldom an isolated reason; generally it exists in connection with indifference or improvidence. In either case the dominant influence is not want of clothing, and care must be taken to detect the real reason.

"At work" refers to such cases as are found upon inquiry to be over fourteen years old.

"Unlawfully absent" includes not only those who are not registered, but also those irregular in attendance. It includes also one or two cases of aggravated tardiness.

"Unlawfully employed" includes all children under fourteen engaged in any mechanical, mercantile, or manufacturing establishment.

"Sent to school" includes all cases where the law was explained to parents, or, where there could be but one inference from the interviews, viz.: that the child must attend school. This part of the work it is hoped to accomplish with courtesy and firmness.

	Avon	Burlington	Canton	Ellington	Farmington	New Hartford	Simsbury	West Hartford	Totals
Cases investigated	30	40	51	...	96	70	39	32	358
Visits to schools	6	26	21	...	11	34	15	14	127
Families	22	59	60	...	94	71	39	36	381
Factories and stores	1	0	1	...	10	5	2	0	19
Lawfully absent, Disability	2	4	7	...	18	8	1	2	42
Want of clothing	0	6	7	...	8	5	1	0	27
At work	2	2	3	...	13	10	1	4	35
Unlawfully absent	25	55	36	...	54	22	37	27	256
Employed	0	0	1	...	2	15	0	0	18
Sent to school	24	57	35	...	51	51	31	26	275
Prosecutions, Parents	0	0	0	...	0	0	0	0	0
Employers	0	0	0	...	0	1	0	0	1
Truants	0	1	2	1	2	2	1	0	9
Sent Conn. School for Boys	0	0	0	1	0	0	0	0	1
Girls	0	0	0	0	0	0	0	0	0
Taught at home	0	0	0	...	1	1	0	0	2

Factories were visited in six towns. The results of the inquiries made are found in the following table :

	Avon	Canton	Farmington	New Hartford	Simsbury	Winchester	Total
Establishments, Visited	1	1	11	3	2	18	16
Inspected	0	1	4	3	2	9	39
Children under 14, Employed	0	0	0	16	0	0	16
Certificates of age, Town Clerk	...	0	0	0	0	0	0
Teacher	...	0	0	8	0	1	9
Parent	...	0	1	18	0	0	19
Prosecutions	...	0	0	1	0	0	1
Children 14 to 16, Employed	0	4	13	63	9	34	123
Cannot read nor write	...	1	0	24	0	0	25
Have local authorities acted	...	no	no	no	no	...	....
School accommodations	yes	yes	yes	yes	yes	yes	....
Reading-room	...	...	...	...	...	...	....
Evening Schools	no	no	no	no	no	no	...

M. A. Warren.

REPORT OF E. C. ANDREWS

Hon. Charles D. Hine,
Secretary of the State Board of Education.

Sir,— The following is a report of my work as agent of the Board for the past year:

The accompanying tables on *attendance* show what has been done in the several towns to enforce the law on that subject. The towns marked * have been thoroughly canvassed, and reports received monthly from the teachers.

A child who has been absent one day a week has been called *irregular*, and, in some cases, a letter written to a parent calling his attention to the irregularity of his child and to the law has been called a *visit*. This is true in all cases where the after-reports from the teacher have shown that the child has attended regularly.

In a large majority of the cases investigated, the cause of the irregularity has been found to be due to carelessness on the part of the parents, and sometimes to neglect on the part of the teacher; for the teacher who greets her scholars with a cheerful "Good morning," who is interested in their outside affairs and pleasures, as well as their school duties, who inquires into their half-day absences and makes each delinquent feel *he* has been missed, who "brings herself down" to the level of her scholars and sympathizes with them that she may lift them to her own plane, who occasionally visits them in their homes, thus gaining the good will and interest of the parents, that teacher will be troubled very little by irregular attendance.

Children should be taught the laws relating to "attendance, instruction, and employment of children," but their respect for law will not be increased if every time they are absent or tardy, the teacher threatens to report them to an agent of the State Board of Education.

As the enumeration blanks are the basis of the agent's work in canvassing a town, it is important that they should be correct, but it is frequently found that they are made up carelessly, often by the teacher herself from her register, and not from a careful canvass of the district by the committee. Parents often give the enumerator one name while the child is known at home and at school by another. If the blanks could be changed so as to require each child's *full name*, his age, and the date of his last birthday, and, in the cities, the number of the house in which each lives as well as the name of the street, the accounting for each child would be greatly expedited.

Prosecutions have been resorted to only when other means have failed. In country towns it is hard, often almost impossible, to get a grand juror to sign a complaint against a fellow-townsman, and it is not uncommon to have to visit every grand juror in the town before one can be found who is willing to sign the complaint. Agents of the Humane Society (Chap. ccxix, General Statutes), the fish wardens (Chap. clxxxv, Public Acts, 1893), and the game wardens (Chap. ccli, Public Acts, 1893), have the power to sign complaints, and to prosecute or to employ counsel. Why should not the agents of the State Board of Education have the same powers?

Very few cases of illegal employment of children in factories have been found, and none of these have seemed to be intentional violations of the law.

TOWNS	Cases investigated	Visits to Schools	Visits to Families	Visits to Factories and Stores	LAWFULLY ABSENT FROM SCHOOL			Unlawfully absent from School	Unlawfully Employed	Sent to School	Prosecutions of Parents	Truants	Sent to Connecticut School for Boys
					Disability	Want of Clothing	At work						
HARTFORD CO.													
Hartford	3	1	1	17	....	....	115	1	1	1	1	......	......
Berlin	4	1	3	......	....	....	....	4	......	4	......	......	......
*Bloomfield	60	8	14	......	3	....	14	13	13	13	......	......	......
Bristol	....	....	....	12	....	....	28	......	......	......	......	......	......
Canton	13	....	3	......	....	....	....	11	......	11	3	......	......
East Granby	2	1	1	......	....	....	....	2	......	2	......	......	......
East Hartford	8	6	6	......	1	....	1	6	3	6	......	......	......
East Windsor,	....	....	....	2	....	....	30	1	1	1	......	......	......
Enfield	....	....	....	4	....	....	69	......	......	......	......	......	......
Glastonbury	4	2	2	5	3	....	18	1	......	1	......	......	......
Granby	8	2	4	......	2	2	1	1	1	1	......	......	......
Hartland	6	2	3	......	3	....	....	......	......	......	......	......	......
Manchester	....	....	....	8	....	....	87	......	......	......	......	......	......
*New Britain	449	....	224	18	33	2	307	139	17	136	17	11	3
*Newington	34	4	7	......	8	3	15	8	......	......	......	......	......
Plainville	2	2	2	4	....	....	8	2	2	2	......	......	......
*Rocky Hill,	50	12	31	......	....	....	7	38	......	38	......	......	......
Southington	....	....	....	5	....	....	14	1	1	1	......	......	......
*West Hartford	69	26	18	......	13	4	10	19	18	18	......	......	......
*Wethersfield	105	22	50	......	20	3	16	66	4	66	4	......	......
Windsor	1	1	....	3	....	....	10	......	......	......	1	1	1
Windsor Locks	....	....	....	6	....	....	22	1	......	......	......	......	......
LITCHFIELD CO.													
*Cornwall	38	13	11	......	3	....	15	8	6	8	2	......	......
New Milford	....	....	....	1	....	....	....	......	......	......	......	......	......
Norfolk	....	....	....	2	....	....	6	......	......	......	......	......	......
North Canaan	6	....	6	......	....	....	....	6	6	6	......	......	......
Plymouth	....	....	....	1	....	....	7	......	......	......	......	......	......
Thomaston	2	1	1	2	....	....	31	2	......	2	......	......	......
Torrington	34	6	28	11	6	7	68	27	9	28	2	......	......
Washington	17	4	11	......	1	....	5	11	......	11	......	......	......
Watertown	....	....	....	4	....	....	17	1	......	1	......	......	......
Winchester	3	2	2	......	2	....	....	1	......	......	1	......	1
FAIRFIELD CO.													
Ridgefield	8	2	4	......	1	3	....	4	......	4	......	......	......

E. C. ANDREWS.

TEACHERS

Summary of Statistics, 1895-6

Number of teachers in winter — male, 409; female, 3,299; total	3,708
Increase, male, 6; increase, female, 71; total increase	77
Number of teachers in summer — male, 361; female, 3,361; total	3,722

Increase, male, 8 ; increase, female, 78 ; total increase	86
Number of teachers continued in same school . .	3,358
Increase for the year	53
Number of teachers who never taught before . .	399
Average wages per month for male teachers . .	$84.65
Decrease for the year	.93
Average wages per month for female teachers . .	42.34
Increase for the year	.46
Number of teachers whose wages was $20 or less per month — male, 19 ; female, 118 ; total . .	137
Number of teachers whose wages was from $20 to $25 per month — male, 23 ; female, 240 ; total . .	263
Number of teachers who had attended Normal School	1,268
Number of teachers' meetings held during the year .	12
Number of state certificates granted . . .	151
Number of state certificates renewed . . .	186
Number of state certificates in force Sept. 1, 1896 .	336

Below will be found a table giving summary for years since 1866 :

TABLE XXIX

Report of	No. of Teachers Winter		No. of Teachers Summer		Continuously Employed	Beginners	Av. Wages		Amount paid for teachers' wages	Per cent. of total expense for schools	Teachers' meetings	Examinations		
	Male	Fem.	Male	Fem.			Male	Female				No. held	No. of Candidates	No. of Certificates
1866	655	1,448	113	1,959	1,074	558	49.00	22.61	421,137.92	70.4	0	....	....	....
1867	624	1,518	115	1,995	1,185	639	45 21	23.14	482,677.50	67.3	9	....	....	...
1868	617	1,560	139	2,023	1,218	637	52.05	24.91	557,193.22	57.8	12	....	...	...
1869	645	1,580	150	2,057	1,453	651	56.64	26.93	609,658.05	51.3	33	....	...	...
1870	679	1,639	162	2,134	1,568	608	58.74	29.16	695,539.25	54.3	12	....	....	..
1871	702	1,670	185	2,141	1,407	607	63.10	31.29	785,680.04	48.4	9	....	...	....
1872	699	1,721	186	2,194	1,434	595	66.56	32.69	833,759.96	55.6	6	....	....	....
1873	715	1,762	198	2,240	1,508	580	67.01	34.09	888,871.89	58.1	10	....	..	....
1874	711	1,810	246	2,246	1,574	618	69.03	36.05	959,229.40	64.9	11	....	....	...
1875	704	1,897	258	2,303	1,690	539	71.48	36.67	1,021,714.07	60.1	1	....	....	....
1876	721	1,910	272	2,324	1,768	557	70.05	37.35	1,057,242.19	67.1	0	....	..	....
1877	767	1,899	321	2,317	1,780	539	67.43	37.16	1,085,290.05	70.9	6	....	...	...
1878	753	1,923	305	2,354	1,904	478	64.55	36 20	1,058,682.28	60.1	5	....	....	....
1879	752	1,959	349	2,329	1,947	470	61.03	36.50	1,041,040.43	68.1	5	....	....	....
1880	773	1,968	377	2,344	2,063	484	57.19	35.27	1,015,882.91	73.7	5	....	....	....
1881	746	2,025	392	2,354	2,119	411	56.43	35.42	1,011,729.94	71.8	4	....	....	....
1882	680	2,120	349	2,432	2,144	454	60.69	35.37	1,025,322.66	69.4	10	....	....	....
1883	617	2,213	316	2,503	2,183	470	63.44	35.94	1,056,268.25	68.0	9	....	....	....
1884	566	2,301	307	2,532	2,325	460	67.36	36.52	1,094,580.61	60.3	9	....	....	....
1885	562	2,347	307	2,596	2,347	485	69.17	37.21	1,130,863.35	63.6	17	15	153	23
1886	546	2,442	346	2,625	2,463	395	69.16	37.64	1,166,879.13	62.9	23	25	253	47
1887	561	2,477	346	2,670	2,482	419	69.89	37.97	1,188,056.04	66.3	15	20	166	42
1888	533	2,559	343	2,730	2,654	378	68.82	38.50	1,227,412.60	69.4	21	25	296	66
1889	493	2,629	327	2,783	2,677	398	73.50	38.52	1,264,061.02	69.6	6	19	194	33
1890	468	2,631	331	2,785	2,719	378	74.47	39.31	1,291,472.88	65.0	13	23	347	52
1891	460	2,766	356	2,852	2,766	426	76.24	39.34	1,330,087.56	62.2	13	24	283	36
1892	434	2,866	341	2,952	2,866	405	77.11	39.84	1,369,432.97	63.1	13	73	191	151
1893	419	2,925	315	3,023	2,974	405	83.69	39.48	1,426,711.16	63.8	25	73	221	124
1894	390	3,025	321	3,089	3,059	388	86.48	40.64	1,485,377.23	63.4	24	84	250	106
1895	405	3,093	332	3,163	3,171	413	85.87	41.48	1,548,148.67	58.5	28	51	185	117
1896	403	3,228	353	3,283	3,305	365	85.58	41.88	1,621,183.73	62.7	14	76	313	148
1897	409	3,299	361	3,361	3,358	399	84.65	42.34	1,701,659.99	60.8	12	40	396	151

The foregoing statistics suggest:

1. The inadequate wages paid to many teachers.

2. The great difference between the wages of women and men ($84 to $42).

3. The great number of persons allowed to begin without preparation — a monstrous abuse of children.

While figures are not at hand, it is certain that half the teachers in the state do not receive more than $8 per week, or $288 a year. Out of this grows a crop of evils. The well qualified are justly uneasy, and seek better pay and permanent tenure. The poorer districts are depleted for the benefit of the richer, and the children bear the burden of incompetency and change.

To this there is the true and ever-ready answer that persons who have not fitted themselves for teaching are not worth more than the pittance they receive, and that those who have the natural and acquired qualities of teachers will rise in position and salary.

The lack of qualifications, the law, and presumably public opinion, are responsible for the employment of cheap teachers. Again and again attempt has been made to compel teachers to obtain certificates of qualification, and invariably has the effort failed. Even a mild measure requiring all who begin to teach after a day certain long in advance to hold State certificates has been rejected off-hand.

Nor are teachers themselves united on this point. They do not display the spirit which characterizes other professions, like law and medicine, and are not anxious that a path by which the profession can be entered shall be prescribed.

Most teachers have entered upon their work without any training, and cannot think of reflecting upon their own acquirements. If, with any approach to unanimity, they ask for a professional test and a prescribed method of entrance to their ranks, it will be obtained.

The difference in wages between men and women has before been the subject of comment.

It must be noted that women have come to this vocation within a comparatively few years, and their compensation has steadily advanced. Moreover, the men whose salaries are averaged often hold positions of supervision or of extensive responsibility. When men and women occupy positions of equal responsibility and importance, the women always receive inferior salaries.

The question is not one of sentiment; it is one of supply and demand. Teaching has not been an attractive occupation for men, and few attempt to enter it as a permanent employment. The places have, therefore, been opened to women, and they are in great numbers ready to enter. There has come also the just feeling that little children should be taught by women and not by men, and thus a part of the schools are closed to men. In the higher and better-paying positions there still remains the anomaly that, no matter what the qualifications may be, a man will be hired if possible; if not, a lower salary will be paid to a woman.

Supervision

The careful supervision of schools by thoroughly competent men has not been generally accepted in this state. The towns in which the district system survives cannot have superintendents with the ordinary and useful powers.

In a few large districts, as in Hartford, the principals devote a part or all of their time to supervision.

I

The following towns or districts have superintendents who devote all their time to the usual duties of supervision:

TABLE XXX

	Name of Superintendent
Bridgeport	C. W. Deane
Danbury (Center District)	G. D. Northrop
Meriden	C. M. Williams
New Britain	G. A. Stuart
New Haven	C. N. Kendall
New London	C. B. Jennings
Norwich (Central District)	N. L. Bishop
Stamford	E. C. Willard
Waterbury (City District)	M. S. Crosby

II

The following towns or districts employ supervising principals, who, in most cases, combine teaching with supervision:

Derby	John W. Peck
Hartford	J. A. Graves
"	C. L. Ames
"	W. I. Twitchell
"	W. F. Gordy
"	Esther C. Perry
Killingly (Danielson)	A. P. Somes
Norwich (West Chelsea District)	J. B. Stanton
Torrington	E. H. Forbes
Wallingford	D. R. Knight

III

The following acting visitors unite with supervising some other business or profession :

Bristol	C. L. Wooding
Hartford	A. F. Gates

TEACHERS' MEETINGS

The following table shows the number of teachers' meetings from September 1, 1895, to September 1, 1896 :

TABLE XXXI

Date 1895		Town	Teachers	School Officers	Attendance
Sept.	25	New Hartford	12	2	60
	27	Killingworth	18	3	45
	30	Burlington	8	2	33
Oct.	2	Hampton	25	4	106
	4	Bloomfield	36	1	45
	11	Essex	26	1	34
	16	Hartland	18	3	42
Nov.	22	Ridgefield	15	6	200
1896					
Jan.	27	Glastonbury	..	..	50
	31	Durham	27	7	120
Feb.	14	Mansfield	10	5	15
	28	Stafford Springs	25	5	40
	28	Salisbury	40	6	100

In the following towns teachers' meetings were held differing from the former only in the fact that there was a single instructor and the call for the meeting was limited to a single town :

1895
Sept. 20, Rockville
" 28, North Stonington
" 28, Danbury
Oct. 4, Rockville
" 5, Litchfield
" 18, Plainfield
" —, Norfolk
" 25, New Milford
Nov. 1, Berlin
" 1, East Hartford
" 4, Putnam
" 7, North Stonington
" 8, Rockville
" 11, Plainfield
" 22, Ridgefield
" 23, Newtown
" 23, Danbury
Dec. 2, Watertown
" 6, Berlin
" 6, Norfolk
" 13, Rockville
" 13, New Milford

1896
Jan. 10, North Stonington
" 11, East Lyme
" 13, Branford
" 15, Norwich
" 17, North Stonington
" 24, Stonington
" 24, Windsor
" 31, Rockville
Feb. 7, Plainfield
" 7, Ridgefield
" 10, Branford
" 12, Norwich
" 14, Newtown
" —, Stonington
Mch. 9, Branford
" 10, New Milford
" 11, Norwich
" 13, Berlin
" 20, Plainfield
April 10, North Stonington
May 8, Berlin

STATE EXAMINATIONS

The record covers a period from September 1, 1895, to September 1, 1896.

The number of persons examined was 396.

State Certificates. The object of state certificates is the exclusion or discouragement of incompetent persons from the actual business of teaching. By requiring evidence of a moderate amount of education and of some practice in teaching, not only would real impostors be shut out, which is always desirable, but the children in all schools would be somewhat relieved from the dismal effects of inexperience. Teachers would not begin by being plainly and unavoidably incompetent, and learn their business at the expense of the children. Nor would we proceed longer on the supposition that a graduate of a school or college as such is a superior person, who can teach by the light of nature, without having learned how to do it.

It is difficult to characterize the annual incursions into the schools of those who come with symbolic statement of qualification in the form of a diploma from a school or college. These persons do not even enter upon probation; they are admitted to the vocation of teaching without a particle of evidence that they are fit.

The number of state certificates granted from September first, 1895, to September first, 1896, was:

Elementary	148
Honor	3
Total	151

The number of state certificates renewed from September first, 1895, to September first, 1896, was:

Elementary	172
Honor	14
Total	186

Holders of Elementary Certificates

The following persons were holders of elementary state certificates, September first, 1896:

Abell, Anna E.	Lebanon
Abell, Margery	Easthampton
Ahern, Alice J.	Hartford
Alford, Alice M.	Willimantic
Allyn, Eleanor	Black Hall
Andrews, Mary E.	Summit, R. I.
Armstrong, Isabella J.	Stonington
Arnold, Grace	Putnam
Atkins, Grace E.	Forestville
Augur, Elma I.	Westville
Avery, Mabel E.	Wapping
Babcock, Sadie L.	Stonington
Bacon, Mary C.	Suffield
Bailey, J. Adanois	Milford
Ballard, Laura C.	Thompson
Balzer, Lottie B.	New Haven
Bancroft, Bertha L.	New Britain
Barber, Mary E.	Seymour

Barrett, Agnes C. South Norwalk
Barwald, Sarah A. Hartford
Bass, Egbert A. Coventry
Beard, Flora H. Shelton
Beard, Nellie S. Milford
Beebe, Lina H. Easthampton
Berg, Mary K. South Norwalk
Bidwell, Ida L. Middletown
Bigelow, Bessie I. Plantsville
Bishop, Jessie R. Jewett City
Blake, Mary J. Hartford
Bliss, Frances M. Oneco
Boardman, Albert Taftville
Boardman, Alice E. Taftville
Bonney, Jennie G. Norwich Town
Borland, Jennie Thompsonville
Botelle, Myrtie L. Cromwell
Boynton, Sarah I. South Coventry
Bradley, Lizzie H. Stonington
Brennan, Elizabeth A. New Haven
Britner, Annie Willimantic
Bromley, Mabel J. New Haven
Brown, Ella M. Merrow
Brown, Harriet E. Yalesville
Brown, Hattie B. Gales Ferry
Brown, Julia Greenfield Hill
Browne, Katherine L. Willimantic
Bubser, Anna A. Hartford
Buell, Julia E. New Britain
Bull, Adelia F. Ivoryton
Burke, Mary L. Talcottville
Cadwell, George A. Willimantic
Callan, Lucy L. Southport
Callender, Iva M. Watertown
Camp, Susan A. Hawleyville
Campbell, Annie N. Preston
Campbell, Jennie M. New Haven
Campbell, Sarah G. Westport
Carpenter, Bertha Moosup
Carpenter, M. Carabelle Willimantic
Casey, Nellie Meriden
Cavanaugh, Annie A. Norwalk
Cavanaugh, Theresa R. Norwalk
Chapman, Ella S. Ellington
Chapman, John L., Jr., Central Village
Chavell, Lucy A. Stratford
Clapp, Frank W. Niantic
Clark, E. Abbe New Britain
Clark, Minnie L. New Britain
Claven, Margaret I. Norwalk
Colburn, E. Gertrude South Coventry
Coleman, Mary E. Hartford
Coffee, Anna L. Norwich
Cornelius, Isabella C. Oneida, Wis.
Crampton, Ruth S. Madison
Crowell, Lottie A. Middletown
Cullum, Mary A. Waterbury
Curtis, Mabel E. Madison
Curtiss, Miriam B. Bristol
Dargan, Katherine T. New Haven
Day, Rose E. Lakeville
DeBank, Clarissa Ansonia
Decker, Kate Wethersfield
Devitt, Margaret M. New Britain
Donahue, Julia M. Litchfield
Donaldson, Minnie R. Winsted
Dougherty, Katharine A. Cornwall Bridge
Dowd, Clara M. East River
Doyle, Elizabeth B. New Haven
Doyle, Ellen J. Bridgeport
Dunbar, Jennie New Britain
Durfey, Lucy G. Norwich
Dwight, M. Grace New London
Eagen, Josephine M. New Haven
Egan, Margaret A. Parkville
Elwood, Nellie Westport
English, Mary T. New Haven
Falvey, Agnes E. Bristol
Farrell, Lillian A. Norwalk
Ferriss, Minnie A. New Milford
Feuchtwanger, Marian New Haven
Filer, Emma R. Warehouse Point
Finnegan, Mary A. New Britain
Fitzpatrick, Mary A. Ansonia
Fleming, A. Elizabeth New Haven
Forsman, Agnes New Britain
Fowler, Annette B. Guilford
Fox, Grace E. Hockanum
Frawley, Bertha C. Thompson
Frye, Alice Willimantic
Fuller, Alice M. Hampton
Gadbois, Anna M. Leffingwell
Gallagher, Maggie V. Farmington
Gallup, Bessie M. Hartford
Gard, Edith A. New London
Gay, Ella B. New Britain

Geer, Maria E. East Norwalk
Gessner, Elizabeth E. New Haven
Gillette, V. Edith New Britain
Gilligan, Jennie T. Kensington
Gilmore, Edyth A. Broad Brook
Golding, Ada H. Norwalk
Gorham, Eva A. Westville
Graeber, Antonie D. Meriden
Greenbaum, Bella New Haven
Gridley, Edith M. Broad Brook
Griswold, Jessie D. Rocky Hill
Hamlin, Mary W. Willimantic
Hanna, Grace L. Montville
Hansen, A. Marie Hartford
Harris, Elfie L. Preston
Harty, Katherine T. New Haven
Hayes, Elizabeth T. Norwich
Hayes, Josephine A. New Haven
Healey, Alice M. Winsted
Helgren, Louise O. Parkville
Helion, Margaret T. Hartford
Hellmann, Minna Hartford
Henderson, Barbara New Haven
Hickox, Eva A. Ridgefield
Hills, Bertha M. Hillstown
Hogan, Elizabeth H. Unionville
Holcomb, Ida G. Simsbury
Honan, Mary A. New Britain
Hooper, Grace Montville
Hoskins, Frances T. Hartford
Hotchkiss, Lottie H. New Haven
Huested, Fannie E. Stamford
Huested, Florence E. Stamford
Huntting, Ella Hartford
Huntting, Janet S. Hartford
Hurley, Margaret M. Shelton
Hussion, Agnes E. New Haven
Hyde, Fannie S. Danbury
Hyde, Ida New Haven
Hyde, S. Fanny New Haven
Igoe, May R. New Haven
Inglis, Euphemia D. Middletown
Innis, Eva L. Stratford
Ives, Phœbe T. Branford
Ives, Rosa J. Lyme
Jennings, M. Emma Greenfield Hill
Jennings, M. Winnifred Greenfield Hill
Johnson, Emma A. Winsted
Jones, Inez D. North Westchester
Jordan, Mary S. Willimantic
Judson, Ada B. New Haven
Keefe, Genevieve E. New Haven
Kelleher, Josephine A. Stevenson
Kelley, Marcella M. Norwich Town
Kelley, Mary M. Norwich Town
Kelly, Emily W. Waterbury
Kelly, Josephine F. Windsor Locks
Kelsey, Charlotte L. Duncan
Kenney, Winifred K. Hartford
Kenny, Rosamond A. Mt. Carmel
King, Frank S. Lebanon
Kingsbury, Myrtice Thompson
Kinney, Florence F. Dedham, Mass.
Kirtland, Alice L. Yalesville
Kloppenburg, Eleanor K. Preston
Krause, Anna E. New Haven
Lacy, Mary E. Hartford
Lake, Grace E. Newtown
Landon, Kate H. Norwich
Lawton, Caroline L. West Cheshire
Lennon, Lula A. New Haven
Leonard, Ida A. Makawar, Maui, Hawaiian Islands
Lewis, Almira Middletown
Lewis, Mary R. Rocky Hill
Littlefield, Ada D. Winterport, Me.
Livingstone, Alice M. Taftville
Loomis, Gladys J. Westchester
Luke, Ella Milford
Lyman, Mary F. Norwich
Mainwaring, May New York
Manion, Nellie A. Windsor Locks
Manley, Anna L. Danbury
Marvin, Lillie A. Colchester
Mason, Alice E. Mansfield
Maum, Nonie C. Ansonia
McCann, Catherine E. Saugatuck
McCarthy, Gertrude E. New Haven
McClellan, John W. Norwich Town
McCormick, Christine G. New Haven
McHugh, Katherine A. New Haven
McLaughlin, Mary L. Norwich
McLoughlin, Anna New Haven
McLoughlin, Julia I. New Haven
McNulty, Annie E. New Britain
Merwin, Adella M. Cornwall Hollow

Meyers, Eva B.
Bethel
Miller, Grace E.
Middlefield
Miller, Leonora E.
Norwich Town
Miller, Sarah B.
Middlefield
Moore, Adelaide A.
Hartford
Moore, Mary A.
West Haven
Moriarty, Ellen A.
Hartford
Moriarty, Rose A.
Hartford
Morrison, Martha A.
Bethel
Moses, Marion M.
Hartford
Mulcahy, Bridget T.
Hartford
Mulcahy, Julia A.
West Winsted
Munson, Lucy J.
South Norwalk
Murphy, Agnes G.
Middletown
Murphy, Katherine T.
Stamford
Murphy, Margaret A.
New Haven
Murphy, Susan T.
Willimantic
Murnane, Anna J.
New Britain
Murray, Annie E.
New Haven
Murray, Mary L.
Willimantic
Nettleton, Minnie E.
New Haven
Newell, Edna A.
South Coventry
Newell, Susan T.
Branford
Norton, Edith S.
Willimantic
Norton, Hannah M.
Greens Farms
Norton, Marion E.
Wallingford
Norton, S. Annie
Wallingford
O'Brien, Ellen K.
New Haven
O'Brien, Katherine A.
Old Lyme
O'Neill, Frances T.
Willimantic
Osgood, Gertrude E.
New Haven
Parsons, Agnes D.
New Britain

Pausch, Clara A.
Hartford
Pease, Benjamin F., Jr.,
Southport
Pendleton, Grace E.
Somersville
Perkins, Florence I.
Willimantic
Perkins, Frank E.
South Coventry
Phippeney, Emma L.
Torrington
Pinney, Margaret F.
Terryville
Pomeroy, Grace L.
Easthampton, Mass.
Procknow, Charlotte S.
Meriden
Purinton, E. Maude
Hartford
Quinlan, Martha A.
Branford
Quigg, Mary B.
New Canaan
Reilly, Mary F.
New Haven
Remington, Clara E.
Mansfield
Rigby, May E.
Taftville
Robertson, George H.
South Coventry
Rochfort, Mabel E.
New Haven
Rood, Elsie A.
Norfolk
Rose, Elizabeth F.
Taftville
Russell, Claude C.
East Lyme
Ryan, Caroline A.
Meriden
Sanford, Alice M.
New Haven
Schmahl, Louise
New Haven
Scranton, Alice L.
Wallingford
Scranton, Augusta
New Haven
Service, Isabella T.
Norwich
Shaw, Martha I.
Meriden
Sheldon, Emma L.
Enfield
Sibley, Mary M.
Brooklyn
Simms, Carrie I.
Norwalk
Smith, Edith V.
West Haven
Smith, Ellen C.
West Haven

Smith, Louise
Saugatuck
Smith, William E.
Bridgeport
Spellacy, Julia C.
Hartford
Spencer, Florence M.
Hartford
Squires, Lillian M.
Hartford
Stanley, Louis H.
Brooklyn
Stanton, John B.
Moosup
Stearns, Ella R.
Willimantic
Steele, Ellen
Portland
Stevens, Lucy M.
Stamford
Stevens, Sadie E.
South Meriden
St. John, Delia E.
Norwich
Storrs, Mabel N.
Hartford
Stoughton, Ellen K.
East Hartford
Sugrue, Agnes C.
Willimantic
Sullivan, Bridget A.
Willimantic
Sullivan, Cecelia M.
Norwich
Sullivan, Margaret E.
Stamford
Suydam, Gertrude L.
Salisbury
Swan, Nellie F.
Millington
Tatem, F. May
New Britain
Taylor, Myrtilla P.
Saugatuck
Tracy, Coral E.
Willimantic
Tracy, Kathryn M.
Bristol
Tripp, Annie I.
Central Village
Trounson, Mary P.
East Norwalk
Trowbridge, Kate T.
Stamford
Tucker, Marguerite A.
Westville
Tucker, Mary F.
New Haven
Tuite, Mary E.
Hartford
Turner, Rose L.
Norwich
Tyler, Elma M.
Deep River

Tyler, Mabel E.	Hartford
Vine, Sara M.	Ansonia
Wadhams, Julia E.	Goshen
Wadhams, Lucy B.	Goshen
Wakelee, Harriet B.	Birmingham
Walsh, Mary A.	Easthampton
Warner, Ella P.	Highwood
Warner, Elsie M.	Highwood
Washburn, Ella A.	Hartford
Welles, Emily H.	Holyoke, Mass.
Welles, Katharine	Wethersfield
Welton, Alice A.	New Haven
Wheeler, Elizabeth L.	New London
Wheeler, Kathleen E.	Broad Brook
Wheeler, Minnie A.	Norwich
Wheelock, Kate P.	Upper Montclair, N. J.
White, Daisy	Hopevale
White, Maud E.	Gildersleeve
Wilcox, Rachel M.	Madison
Wilcox, Wells S.	Willimantic
Wildes, Ada L.	East River
Wilkinson, Sarah M.	Shelton
Willard, Martha	Wethersfield
Williams, Ida J.	Moodus
Williams, Mary A.	Willimantic
Wilson, Edna E.	Norwalk
Wolfe, Maud E.	Stratford
Woodbury, Louise	Springdale
Wooding, Mary E.	Hartford
Wright, Lulu M.	Elmwood
Young, Ida A.	Middletown

Total 336.

HOLDERS OF HONOR CERTIFICATES.

The following persons were holders of honor state certificates, September first, 1896:

Blake, Mary J.	Hartford
Bubser, Anna A.	Hartford
Clark, E. Abbe	New Britain
Clark, Minnie L.	New Britain
Curtiss, Frederick A.	Saybrook
Golding, Ada H.	Norwalk
Guinan, Mary E.	Hartford
Mainwaring, May	New York
McNulty, Annie E.	New Britain
Moriarty, Rose A.	Hartford
Quinlan, Ellen T.	Branford
Quinlan, Martha A.	Branford
Stanton, John B.	Moosup
Taylor, Myrtilla P.	Norwich
Wells, Emily H.	Holyoke, Mass.

Total, 15.

COURSES FOR TEACHERS.

With the desire of being serviceable to the teachers of public and private schools in the State of Connecticut, the faculty of Yale College arranged a series of courses in various subjects of study to extend through the academic year 1896–97.

The following courses were offered:

I. Political and Social Science.
II. History.
III. English.
IV. Modern Languages.
V. Greek.
VI. Chemistry.
VII. Physics, Paleontology, and Physical Geography.
VIII. Biology.

IX. Mathematics, Astronomy, and Instrumental Drawing.
X. Psychology and Pedagogy.

Of these courses, some are adapted to aid the teachers in the special branches in which they give instruction in the schools, while others cover advanced work in subjects outside of school work.

These courses include lectures, lines of reading to supplement class-room work, illustrations by charts and models, and laboratory experiments where practicable. There are discussions of the topics, and preparation is required. Whenever possible, the direct bearing of the subjects upon active teaching in public schools is presented.

These courses are open to all who, through their previous studies or experience in teaching, are qualified to undertake the work required.

This opportunity so generously opened includes recognition as members of the university by enrollment in the annual catalogue.

Teachers who take these courses will not be regarded as candidates for a degree.

A course will consist of twenty-four exercises to be given on Saturday mornings — eight in the fall, eight in the winter, and eight in the spring term.

The University Library is open for consultation to those who hold tickets to these courses. The exhibition rooms of the Peabody Museum and the collections of the Art School are also open.

The following courses are given this year, 1896–7 :

I

POLITICAL AND SOCIAL SCIENCE

Professor William G. Sumner:—

Science of Society. Fall term.

Tylor's *Anthropology* will be read in set lessons. The exercises will consist of discussions of the topics in the lessons as contributions to the Science of Society. Beyond this, Spencer's Study of Sociology will be optionally included.

Assistant Professor Irving Fisher :—

Money and Monetary Reform. Winter term.

Value, Money and Credit, Monetary Laws. Monometallic, bimetallic, and paper systems of currency, with especial reference to the actual experience of the United States and other countries. The relation of money and credit to prices. The effects of the demonetization of silver. Plans for monetary reform in the United States.

Professor Henry W. Farnam:—

Pauperism in its Economic Aspects. Spring term.

The eight lectures will deal with the causes of pauperism, its economic effects, and some of the principal methods that have been used to mitigate or prevent it.

II

HISTORY

Professors Arthur M. Wheeler and Edward G. Bourne:—

General History. Fall term.

Lecture I: The Teaching of History in the Public Schools, Professor Wheeler.

Lecture II: The Teacher's Library, Professor Bourne.

Lectures III–VII: The United States and their Relations to other Nations, Professor Wheeler.

Lecture VIII: Written Constitutions: Their Origin and Diffusion, Professor Bourne.

Professor Charles H. Smith:—

Constitutional History of the United States. Winter term.

Eight Lectures on the Formation and Development of the Federal Constitution.

Professors George B. Adams and Edward G. Bourne:—

United States History. Spring term.

Lectures I–III: English Institutions in the United States, Professor Adams.

Lectures IV–VIII: Economic and Political Questions, Professor Bourne.

Lecture IV: The Old Colonial System.

Lecture V: The Northwest Ordinance and the New Colonial System.

Lecture VI: The Rise of Democracy and Party Changes.

Lectures VII–VIII: Economic and Political Aspects of Slavery in the United States.

III

ENGLISH

Professor Henry A. Beers:—

Eight Comedies of Various Literary Periods. Fall term.

1. Humour Comedy.
2. Farce.
3. Realistic Comedy.
4. Romantic Comedy.
5. Tragi-Comedy.
6. The Artificial Comedy of Manners
7. The "Classical" Comedy.
8. Satirical Comedy.

Professor Albert S. Cook:—

Milton. Winter term.

A course in the first two books of *Paradise Lost*, on the basis of Professor Cook's edition (Leach, Shewell & Sanborn). The exercises will consist of discussions, involving careful thought on all questions suggested by the notes, and it is expected that preparation for these discussions will be thorough. A principal object of the course is to exemplify the intensive method as applied to the study of literature.

Professor Thomas R. Lounsbury:—

English Literature. Spring term.

1. The relation of the Elizabethan Drama to the Social and Political Life of the times.
2. The Text of Shakespeare.
3 and 4. Shakespeare as a Dramatic Artist.
5–7. Shakespeare in Literary History.
8. The morality of Shakespeare.

IV

GREEK

Professor Thomas D. Seymour:—

Greek Literature. Fall Term.

Eight lectures.

Professor Bernadotte Perrin:—

Greek Life. Winter term.

Eight lectures.

Professor Thomas D. Goodell:—

Greek Art and Archaeology. Spring term.

Eight lectures.

V

BIOLOGY

Professor Sidney I. Smith:—

Morphology. Fall term.

The development of the cell in animal tissues, and the structure of secreting glands. Informal lectures followed by demonstrations and examinations of specimens. This course is introductory to the following courses.

Professor Russell H. Chittenden:—

Physiology. Winter term.

The physiology of digestion. The composition and properties of the several digestive juices, with special reference to salivary, gastric, pancreatic, and intestinal digestion. Informal lectures with illustrative experiments.

Dr. Alexander W. Evans:—

Botany. Spring term.

The nutrition of plants. A study of the assimilative tissues and processes.

VI

PSYCHOLOGY AND PEDAGOGY

Professor George T. Ladd:—

The Elementary Principles of Psychology. Fall term.

A general introduction to the study of Psychology as applied to mental development.

Professor George M. Duncan:—

Educational Psychology. Winter Term.

The study of Psychology in its bearings on the training of the mind.

Assistant Professor E. Hershey Sneath:—

Educational Theory. Spring term.

A discussion of representative systems in the History of Pedagogy.

Schools.

Summary of Statistics 1895–6.

Number of towns in the state	168
Number of school districts in the state	1,261
Number of public schools	1,563
Decrease for the year	14
Number of departments in public schools	3,436
Increase for the year	98
Average length of public schools	187.47 days
Increase for the year	4.15 days
Number of schools of two departments	135
Number of schools of three departments	55
Number of schools of four departments	49
Number of schools of five departments	24
Number of schools of six or more departments	148
Number of town high schools	36
Whole number of graded schools	411
Number of evening schools	31
Number of Normal Schools	3
Number of Kindergartens	82

The increase in the number of schools [departments] in the last six years is as follows:

TABLE XXXII

Report of	No. of Schools	Report of	No. of Schools
1892	3,057	1895	3,236
1893	3,131	1896	3,338
1894	3,171	1897	3,436

Below will be found a summary for years 1866 to 1897 inclusive:

TABLE XXXIII

Report of	Average Length	No Districts	No Public Schools	No. of Departments	No. of Graded Schools	Evening Schools
1866	175.00	1,623	1,662	1,991	186	..
1867	164.50	1,609	1,651	2,051	187	..
1868	164.50	1,590	1,645	2,066	189	..
1869	163.05	1,572	1,640	2,140	203	..
1870	161.75	1,570	1,647	2,213	217	..
1871	168.51	1,555	1,644	2,248	217	..
1872	172.41	1,535	1,630	2,290	225	..
1873	173.34	1,521	1,638	2,348	232	..
1874	174.18	1,502	1,648	2,405	236	..
1875	176.29	1,495	1,642	2,458	260	..
1876	176.26	1,506	1,650	2,499	264	..
1877	178.14	1,493	1,628	2,499	270	..
1878	177.52	1,487	1,629	2,530	277	..
1879	178.47	1,500	1,647	2,564	286	..
1880	178.60	1,498	1,638	2,571	300	..
1881	179.02	1,473	1,630	2,594	308	..
1882	179.98	1,471	1,634	2,627	314	..
1883	179.66	1,447	1,628	2,649	313	..
1884	178.77	1,447	1,634	2,735	320	26
1885	179.55	1,447	1,639	2,779	338	23
1886	179.18	1,441	1,633	2,837	339	29
1887	179.74	1,447	1,631	2,860	354	31
1888	180.18	1,424	1,628	2,903	361	26
1889	179.08	1,423	1,624	2,921	361	33
1890	180.32	1,404	1,629	2,969	362	30
1891	182.51	1,394	1,611	2,994	362	27
1892	182.26	1,408	1,599	3,057	379	35
1893	182.30	1,394	1,594	3,131	379	39
1894	182.74	1,386	1,584	3,171	376	24
1895	182.92	1,347	1,561	3,236	385	43
1896	183.32	1,263	1,577	3,338	395	35
1897	187.47	1,261	1,563	3,436	411	31

The greatest advance in school administration is in the length of time the schools are open. The following table shows the change for ten years.

TABLE XXXIV

Report of	Length in days	Report of	Length in days
1888	180.18	1893	182.30
1889	179.08	1894	182.74
1890	180.32	1895	182.92
1891	182.51	1896	183.32
1892	182.26	1897	187.47

HIGH SCHOOLS

The following table shows the condition of High Schools in the year 1895-6:

TABLE XXXV—STATISTICS OF

Town	Town or District	No. of Classes	Number in Each Class							Teachers		No. of Courses	Number in Each Course					Graduates in Each Course this Summer				
			a highest	b	c	d	Graduate Students	Unclassified	Total	Men	Women		Classical	Scientific	English	Commercial	Other Courses	Classical	Scientific	English	Commercial	Other Courses
Ansonia	Town	4	8	12	14	21	....	1	56	2	2	3	3	3	....	....	50	....	2	....	....	
Bethel	Town	3	...	10	26	32	10	...	78	1	1	2	38	30	....	....	....	6	4	....	....	...
Branford	Center	3	...	8	9	13	....	...	30	1	1	1	....	30	....	....	....	....	7	....	....	...
Bridgeport	Town	4	31	58	73	94	1	...	257	3	8	4	41	43	172	70	....	6	3	14	24	...
Bristol	Town	4	17	19	19	41	1	...	97	1	5	3	50	47	....	....	....	5	12	....	....	...
Canton	Collinsville	4	12	16	11	30	....	...	69	1	1	2	35	3	....	....	....	....	....	....	....	...
Cheshire	Town	2	...	....	23	30	....	...	53	1	....	2	50	....	....	5	....	....	....	....	....	...
Cromwell	Center	1	...	....	....	4	....	...	4	....	1	3	....	29	....	....	....	....	....	....	....	...
Danbury	Town	3	...	26	33	57	....	...	116	1	2	2	47	69	....	....	....	16	9	....	....	...
Derby	Town	4	9	1	14	22	....	...	46	1	3	3	12	2	9	....	23	1	....	3	....	...
Durham	Center	1	...	....	....	....	....	18	18	1	....	1	....	....	18	....	....	....	....	....	....	...
East Hartford	Town	3	...	5	17	28	....	...	50	1	1	3	....	24	13	....	13	....	3	1	....	
Enfield	Town	4	4	7	17	17	. .	...	45	1	2	...	8	....	10	....	27	1	....	2	....	
Farmington	Center	2	...	....	7	5	....	...	12	1	....	1	....	....	....	....	....	....	....	....	....	...
Farmington	Unionville	4	8	12	14	18	....	12	64	1	1	2	52	....	12	....	....	7	....	1	....	...
Greenwich	Meeting House	2	...	....	22	18	....	...	40	1	1	3	5	29	6	....	....	....	....	....	....	...
Groton	District 5	4	7	9	11	15	1	...	43	1	....	2	30	12	....	....	....	4	3	....	....	...
Guilford	Town	4	5	14	10	12	3	2	46	1	1	2	2	....	44	....	....	1	....	6	....	...
Hartford	Town	4	115	123	167	288	47	...	740	15	15	4	515	50	125	50	....	75	5	29	....	...
Huntington	Shelton	4	5	8	9	4	....	3	29	1	2	...	....	29	....	....	....	....	5	....	....	...
Killingly	No. 1	4	14	13	16	26	14	...	83	1	2	4	15	14	26	....	14	5	2	7	....	...
Litchfield	Town	4	5	6	8	15	....	6	40	1	1	3	4	21	15	....	....	....	....	....	....	...
Madison	Town	3	...	6	5	6	....	...	17	....	1	2	8	17	....	....	....	....	....	....	....	...
Manchester	Town	4	11	9	18	35	....	...	73	2	4	3	8	....	65	....	....	4	....	7	....	...
Meriden	Town	4	33	46	88	114	....	...	281	3	8	4	17	22	107	....	145	5	4	20	....	
Middletown	Town	4	32	45	56	73	....	...	206	2	5	2	....	....	....	....	....	....	....	30	....	...
Milford	Consolidated	3	...	7	10	30	...	...	47	1	2	2	27	....	20	....	. ..	7	....	....	....	...
Naugatuck	Town	4	5	7	10	25	....	...	47	1	1	4	15	10	12	....	10	....	....	....	....	...
New Britain	Town	4	41	42	77	107	8	...	275	4	6	4	22	181	72	....	....	5	16	17	....	...
New Canaan	Center	4	1	6	18	35	....	...	60	1	2	...	7	....	53	....	....	....	....	....	....	...
New Hartford	North End	3	...	3	11	5	....	...	19	1	....	1	....	....	12	....	7	....	....	....	....	. .
New Haven	Town	4	140	180	210	230	....	...	760	8	17	4	340	170	160	90	....	60	30	52	16	...
New Haven	Boardman	3	...	48	43	95	....	6	192	8	6	...	....	60	126	....	....	....	....	....	....	...
New Haven	Westville	1	...	....	....	14	....	...	14	1	1	1	14	....	....	....	....	9	....	....	....	...
New Milford	Center	2	...	....	12	24	....	...	36	1	....	1	....	....	36	....	....	....	....	....	....	...
North Canaan	District 2	2	...	....	10	25	10	...	45	1	....	...	....	....	....	....	....	10	....	....	....	...
Old Saybrook	Town	3	...	5	4	11	....	1	21	1	1	1	....	....	....	....	20	....	....	....	....	...
Orange	District 1	4	4	11	4	3	....	...	22	....	1	1	3	....	19	....	....	2	....	1	....	...
Orange (West	Haven) Union	3	...	11	11	21	....	...	43	1	2	1	....	....	43	....	....	....	....	....	....	...
Plainville	Town	3	...	6	17	14	....	...	37	1	1	2	....	....	25	....	12	....	....	....	....	...
Plymouth	District 1	2	...	....	3	16	....	...	19	....	1	1	....	....	....	....	19	....	....	....	....	...
Plymouth	District 2	3	...	5	8	15	....	...	28	1	....	2	....	6	22	....	....	....	....	4	....	...
Portland (Gilde	rsleeve) Dist. 1	2	...	....	9	5	....	...	14	1	1	2	5	9	19	....	....	....	....	....	....	...
Portland	District 2	4	...	7	11	13	4	...	35	1	1	2	10	2	23	....	....	1	1	5	....	...
Putnam	Town	4	15	18	13	35	....	...	81	1	3	2	8	....	73	....	....	8	....	7	....	...
Salisbury	Lakeville	3	...	6	6	10	....	4	26	1	....	...	....	14	12	....	....	....	....	....	....	...
Saybrook	Union	3	...	6	19	14	6	...	35	1	1	1	....	....	48	....	....	....	....	....	....	...
Seymour	Town	4	8	6	11	14	....	...	39	1	1	2	....	....	32	....	7	....	....	5	....	
Sharon	Town	2	...	....	8	12	....	...	20	1	...	1	36	....	....	....	....	5	....	....	....	...
Southington	Town	4	19	38	33	47	3	...	140	1	4	3	....	....	45	15	80	16	....	3	2	...
South Wind	Town	2	...	....	2	12	....	...	14	....	1	2	13	....	1	....	....	....	....	....	....	...
South Windsor	Wapping	3	...	8	3	6	....	1	18	....	1	2	6	....	12	....	....	....	....	....	....	...
Stafford	Town	4	20	31	12	14	2	...	79	1	2	3	10	31	36	....	....	3	8	3	....	...
Stamford	Town	4	26	36	50	73	24	...	209	3	6	4	15	94	76	....	....	4	11	9	....	...
Stonington	District 9	2	...	....	7	9	....	...	16	1	1	1	....	....	....	....	38	....	....	....	....	...
Stonington	District 18	3	...	10	9	3	9	2	33	1	1	1	31	....	....	....	2	9	....	....	....	...
Stonington	District 3																					
Stratford	District 1	2	...	....	9	24	....	...	33	1	1	1	33	....	....	....	....	....	....	....	....	...
Thomaston	Town	3	...	6	12	10	....	...	28	1	1	...	....	....	....	....	....	....	....	....	....	...
Torrington	Town	4	16	12	23	54	....	...	105	2	4	4	46	10	19	30	....	3	3	9	....	...
Vernon	Rockville	4	21	23	33	50	1	...	128	1	4	4	15	40	59	14	....	2	10	8	....	...
Wallingford	Central	4	12	9	18	37	....	6	82	2	2	4	11	12	29	....	25	....	5	....	....	
Waterbury	Town	4	58	57	55	106	....	...	276	6	4	4	45	118	42	....	58	3	34	16	....	
West Hartford	Town	4	4	4	10	18	2	1	39	1	1	2	....	....	19	....	20	....	....	1	....	
Wethersfield	Town	2	...	....	6	16	....	...	22	....	1	2	16	6	....	....	....	2	4	....	....	...
Windham	Town	4	17	25	36	56	....	6	140	2	3	2	10	....	130	....	....	3	....	13	....	...
Windsor	District 1	4	6	7	11	18	....	...	42	1	1	2	18	....	34	....	....	2	....	2	....	...
Windsor Locks	Union	2	...	....	8	6	1	...	15	1	1	1	....	....	15	....	....	....	....	5	....	...
Total	....	.	729	1093	1539	2350	147	69	5927	108	155	..	1698	1237	1946	274	570	290	181	280	42	25

GH SCHOOLS, 1895—1896

DUATES WHO NT TO COL- E THIS FALL		College Entered															Expenses						
	Girls	Amherst	Bryn Mawr	Cornell	Harvard	Holy Cross	Mass. Inst. of Technology	Mt. Holyoke	Smith	Trinity	Vassar	Wellesley	Wesleyan	Worcester Polytec	Yale	Other Colleges	Teachers' Wages	Fuel	Incidentals	Building	How many rooms for High School Classes	Name of Principal	
2																2	$5,000.00			No	4	Madge E. Richmond	1
																	1,390.00	$66 00	$15.00	Yes		E. M. Crofut	2
																	1,700.00	25.00		No	1	C. H. Harriman	3
9	2								1				1	1	5	3	11,700.00			No	12	H. D. Simonds	4
3	1							1						2	1		5,255.00	582.77	1,359.18	Yes		Elmer S. Hosmer	5
																	2,182.00			No	2	George W. Flint	6
																	850.00	33.75		No	1	Arthur V. Woodworth	7
																	486.00			No	1	Sarah M. Savage	8
1												1					2,610.00			No		Frank H. Burnett	9
																	3,550.00	75.00		No	1	J. W. Peck	10
																	400.00			No	1	F. W. Doane	11
																	1,511.00	76.75	223.00	Yes		Hudson H. Lyon	12
																	2,400.00	230 00	50.00	No	1	E. H. Parkman	13
																	800 00			No		C. W. Ruic	14
																	1,840.00	75.00	5.00	No	1	H. R. Monteith	15
																	2,000.00			No	1	Newton B. Hobart	16
																	900.00			No	1	Henry C. Moore	17
																	1,460.00			No	1	W. E. Soule	18
7	13							1	5		1	1	5	1	16		33,680.00			Yes		Edward H. Smiley	19
1	1												1		1		1,100.00			No	3	Alton W. Pierce	20
2	2							1	1							2	2,456.00			No	3	A P. Somes	21
																	1,600.00	40.00		No	2	Edgar Wood	22
																	780.00			No	1	Mrs Cora K. Clifford	23
3										1						2	4,580.88			No	5	F. A. Verplanck	24
4	2												1		3	2	8,850.00	509.00	425.00	Yes		S. T. Frost	25
1	5												5			1	7,000.00			Yes		W. B. Ferguson	26
																	1,200.00	175.00		No		H. I. Mathewson	27
																	1,800.00			No	1	H. L. Wilbur	28
5	2			1					1				2		2	1	8,498.22	200.00	54.87	No	9	Enoch C. Adams	29
																	2,000.00	191.30	252.50	No	1	George W. Gamble	30
																	850.00			No		Edgar H. Lane	31
0	14		2	1					8		1	3			39		26,000.00	800.00	1,200.00	Yes		Isaac Thomas	32
																	15,500.00			Yes		Thomas W. Mather	33
																	1,500.00			No		C. S. McLean	34
																	1,000.00			No	1	S. C. Shaw	35
																	540.00			No	1	S. J. Roraback	36
																	1,280.00	21.00	10.00	No	1	F. A. Curtiss	37
																	432.00			No	3	Miss Whipple	38
																				No	1	A. M. Drummond	39
																	1,600.00			No	1	M. E. Powers	40
																	608.00			No		Mary O. Wright	41
																	1,000.00			No	1	F. H. Davis	42
																	1,350.00	66.00	35.00	No	2	D. C. Abbott	43
1													1				2,050.00	60.00	100.00	No	4	Martin W. Griffin	44
2	2					1		2								1	2,700.00	150.00		Yes		F. E. Burnette	45
																	1,000.00	50.00	50.00	No		Jos. E. Marvin	46
																	1,292.00			No	3	F. N. Hanchett	47
																	2,050.00	50.00	40.00	No	1	E C. Stiles	48
																	810.00		50.00	No	1	Edward D. Kelsey	49
																	3,800.00	150.00	25.00	Yes		H. W. Rice	50
																	640.00			No	1	Evangeline Kendall	51
																	576.00	47.85		Yes		Susie M. Lindsey	52
																	2,000.00			No	2	Samuel A. Jacobs	53
1															1		7,750.00	450.00	100.00	Yes		W. R. Jones	54
																	1,305.00	30.00	35.00	No	1	Warren E. Fisher	55
																	1,596.00	50.00	40.00	No	1	E. W. Clarke	56
																						H. E. Park	57
																				No	1	J. T. Corlew	58
																	1,700.00		50.00	No	3	Geo. T. Cockingham	59
5	3							1	2				1		4		3,400.00	300.00	500.00	No	2	Edwin H. Forbes	60
2	2	1				1		1	1								3,580.00	930.00		Yes		Isaac M. Agard	61
2	2			2												2	2,000.00			No	4	Frank Warren Eaton	62
4						2				1					1		10,000.00	500.00		*No	5	S. W. Wilby	63
1					1												1,700.00	1,234.00		No	2	A. F. Howes	64
																	1,000.00			Yes		Harriet M. Stone	65
2							1								1		4,565.00			No	5	S. Hale Baker	66
																	1,400.00	90.00	15.00	No	1	R. A. Hutchinson	67
																	1,668.00	25.00	20.00	No	1	Daniel Howard	68
108	51	1	2	4	1	4	1	7	19	2	2	5	17	4	64	16	$229.821.10			†14			

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* One in course of erection.
† 14 towns have high school buildings.
53 towns have no high school buildings.

The following is a summary of the returns for the years 1892–6:

Report of Year	No	4-year	3-year	2-year	1-year	Number Teachers	Registration	Graduates went to College	Cost
1892	53	38	10	5	1	. .	4,450	. .	$170,316
1893	55	34	14	6	1	. .	4,449	. . .	171.030
1894	59	34	15	10	. .	204	4,314	. . .	. . . . . .
1895	62	38	8	13	3	212	5,288	155	. . . . .
1896	67	38	18	8	3	261	6,061	152	229,810
1897	67	36	19	10	2	263	5,907	160	230,571

EVENING SCHOOLS

These schools are not in a flourishing condition, as the following table will show:—

TABLE XXXVI—EVENING SCHOOLS

TOWNS			RECEIPTS				EXPENSES.					REGISTRATION			ATTENDANCE		TEACHERS				SCHOOLS HELD		
																	No.		Average Wages				
	No. of Schools	No. of Sessions	Received from State Appropriation	Town Treasury	Other Sources	Total	Teachers' Wages	Fuel and Incidentals	Rent	Other Objects	Total	No. under 14	No. over 14	Whole No.	Av. under 14	Av. over 14	Male	Female	Male	Female	Months	Days	Hours
Ansonia......	1	75	$25.92	$137.38	..	$163.50	$113.00	$35.00	....	$15.00	$163.50	..	24	24	...	11.52	1	..	$1.50 pr. eve.	....	Nov.–Feb	M., Tu., W., Thur., Fri.	7 to 9 P. M.
Bridgeport....	1	75	15.75	173.00	..	188.75	150.00	1.25	....	37.50	188.75	1	23	24	....	7.30	1	..	2.00 "	....	Oct.–Mch.	M., Tu, W, and Thur.	7 to 9 P. M.
Danbury......	1	75	69.86	428.11	..	497.97	273.50	24.00	$140.00	60.47	497.99	6	126	132	2.78	31.05	1	1	2.00 "	$1.50 pr. eve.	Dec–Mch.	M., Tu., W., Thur., Fri	7 to 9 P. M.
Hartford......	1	80	216.00	3,152.41	..	3,368.41	1,770.00	998.41	600.00	....	3,368.41	..	363	363	....	96.00	4	5	70.00 pr. mo.	30 00 pr. mo.	Nov.–Feb.	M., Tu., W., Thur, Fri.	7 to 9 P. M.
Meriden......	1	75	135.00	285.00	..	420.00	150.00	120.00	150.00	....	420.00	..	350	350	....	60 00	1	2	....	....	Oct.–Jan.	M., Tu., W., Thur., Fri.	7 to 9 P. M.
New Britain..	3	75	110.25	564.00	..	674.25	366.50	118.75	....	189.00	674.25	5	204	209	....	49.00	..	6	....	1.25 pr. eve.	Oct.–Feb.	M., Tu., W, Thur., Fri.	7 to 9 P. M.
New Haven...	10	100	747.00	5,513.96	..	6,260.96	5,343.38	574.58	....	343.00	6,260.96	8	1,561	1,569	....	332.00	27	3	1.82 pr. eve.	1.50 "	Oct.–Mch.	M., Tu., W., Thur., Fri	7 to 9 P. M.
New London..	1	75	49.50	239.57	..	289.07	180.00	37.73	35.67	35 67	289.07	..	51	51	....	22.00	..	2	....	1.20 "	Jan.–Apr.	M, Tu., W., Thur., Fri.	7 to 9 P. M.
Norwalk......	1	59	....	960.36	.	960.36	619.50	113.36	....	227.50	960.36	..	179	179	....	37.20	4	2	2.12 pr. eve.	1.75 "	Nov.–Feb.	M., Tu., W., Thur.	7.30 to 9.30 P. M.
Norwich......	3	75	76.93	591 10	..	668.03	375.00	121.03	172.00	....	668.03	.	87	87	....	34.00	4	..	1.50 "	....	Dec.–Mch.	M., Tu, W., Thur., Fri	7.30 to 9 P. M.
Portland......	1	75	31.86	144.22	..	176.08	134.00	17.08	....	25.00	176.08	..	62	62	....	14.16	2	..	....	....	Nov.–Mch.	M, Tu, W., Thur., Fri.	7 to 9 P. M.
Stamford......	1	75	41.85	324.23	..	366.08	300.00	....	....	66 08	366.08	..	47	47	....	18.60	1	..	3.00 pr. eve.	....	Nov.–Apr.	M., Tu., W., Thur., Fri.	7.30 to 9.30 P. M.
Waterbury....	6	75	318.15	2,401.93	..	2,720.08	2,020.08	500.00	....	200.00	2,720.08	..	344	314	....	142.00	3	15	2.50 "	1.87 pr. eve.	Nov.–Feb.	M., Tu., W., Thur., Fri.	7 to 9 P. M.
Total	31	....	$1,838.07	$14,915.27	..	$16,753.54	$11,794.96	$2,661.19	$1,097.67	$1,199.22	$16,753.56	20	3,421	3,441	2.78	854.83	49	36	....	....	....	....	....

The following gives a summary of statistics of Evening Schools for the years 1888–97:

TABLE XXXVII — EVENING SCHOOLS

REPORT OF YEAR	Number of schools.	Average number of sessions	RECEIPTS				EXPENSES					REGISTRATION			ATTENDANCE		TEACHERS	
			Received from State appropriation	Town or district treasury	Other sources	Total	Teachers' wages	Fuel and incidentals	Rent	Other objects	Total	Number under 14	Number over 14	Whole number	Average under 14	Average over 14	Male	Female
1888	26	..	$1,434.00	$6,981.75	$661.91	$9,077.56	$6,542 13	$1,379.80	$287.50	$867.98	$9,077.41	64	2,631	2,695	27	956	39	24
1889	33	..	1,284.00	7,281.14	225.00	8,790.14	6,569.22	1,424.31	200.00	596.61	8,790.14	73	2,428	2,501	23	856	37	24
1890	32	..	1,510.50	6,999.09	5 43	8,515 02	6,470.82	1,309.35	215.00	519.85	8,515.02	59	2,952	3,011	18	1,007	40	24
1891	27	..	1,308.75	7,587.52	....	8,896.27	7,029.41	1,001.48	200 00	665.38	8,896.27	22	2,861	2,883	10	872	39	31
1892	35	..	1,309.05	8,380.20	....	9,689.25	6,834.47	1,805.71	201.67	847.40	9,689.25	73	3,017	3,090	13.7	871.9	33	35
1893	39	..	1,631.85	11,518.51	30.47	13,180.83	7,642.96	1,364.45	875.00	3,298.42	13,180.83	63	3,343	3,406	11.8	1,138.5	41	65
1894	24	..	1,435.57	11,023.09	....	12,458.66	6,590.11	1,003.02	1,377.69	3,487.84	12,458.66	71	3,123	3,194	16.0	958.0	32	40
1895	46	..	6,021.87	23,940.25	12 00	29,974.12	20,685.01	4,489.51	2,146.00	2,653.60	29,974.12	57	8,007	8,064	17.19	2,146.09	75	85
1896	35	..	3,370.86	17,882.37	....	21,253.23	15,048 38	2,787.31	1,355.59	2,088.26	21,279.54	58	5,017	5,075	9.9	1,123.62	59	50
1897	31	..	1,838.07	14,915.27	... .	16,753.54	11,794.96	2,661.19	1,097.67	1,199.22	16,753.56	20	3,421	3,441	2.78	854.83	49	36

The evening school has not assumed its proper position and due development. Few are found who are anxious to repair the deficiencies of early education or to recover what has been lost by lack of practice. It is unusual to find any who wish to continue the education which the day school has supplied. A large majority of the attendants are adults of foreign birth who wish to acquire the English language as a means of securing better wages.

KINDERGARTENS

The following table shows the number of Kindergartens in the several years since 1889:

TABLE XXXVIII

Year	Number	Number Public	Number Children
1889–90	13	5	871
1890–91	14	10	1,093
1891–92	24	15	1,467
1892–93	49	27	3,330
1893–94	56	34	3,743
1894–95	68	39	4,334
1895–96	82	53	4,994

Table xxxix shows the number of kindergartens and the attendance in the year 1895–6.

It is by no means certain that all can substantiate their claim to be in any proper sense kindergartens.

TABLE XXXIX—

	Town or City.	Name of Kindergarten.	Children.					Expenses.			
			Number enrolled during present year.	Number 3 years old and under.	Number over 3.	Age of youngest child.	Age of eldest child.	Maintenance.	Salaries.	Material.	Fuel and Incidentals.
1	Branford	....	81	10	71	3 y., 11 m.	9 y., 5 m.	Public Money	$810	$125	$75
2	Bridgeport	Froebel	48	....	48	4	11	Tuition	....	....	....
3		Park City	12	...	12	3½	9½	Tuition	....	....	....
4		West End	14	....	14	4	7	Tuition	....	....	....
5		Mlle de la Perrière's	16	....	16	4	11	Tuition	....	....	....
6	Bristol, District 2	North Side	39	....	39	4	7 y., 5 m.	Public Money	720	....	....
7		South Side	104	3	101	3 y., 2 m.	8	Public Money	900	45	....
8	District 1	Hill School	61	2	59	3	7	Public Money	1,000	....	....
9	East Hartford	Centre School	63	3	60	3	7	Public Money	360	† ...	70
10		Second North Sch'l.	70	3	67	2 y., 11 m.	7	Public Money	532	250	....
11	Greenwich	Greenwich School	90	....	90	4	7	Public Money	500	....	....
12		Miss Holden's	12	....	12	4	6	Tuition	....	....	....
13		The Greenwich Sch'l	110	..	110	5	11	Public Money	500	....	....
14	Hartford	Arsenal School	170	6	164	3½	7	Public Money	1,875	75	300
15		Brown School	225	....	225	4	6	Public Money	3,800	30	300
16		Chart. Oak Av. Sch'l	76	9	67	3	6	Public Money	750	....	....
17		Lawrence St. Sch'l.	75	....	75	4	7	Public Money	1,500	....	....
18		North East School	107	....	107	4	6	Public Money	1,300	....	....
19		North West School.	26	....	26	4 y., 6 m.	7 y., 4 m.	Public Money	700	....	....
20		Parkville	92	....	92	4	7	Public Money	1,100	....	....
21		Second North Sch'l.	132	....	132	3 y., 10 m.	6	Public Money	1,750	....	....
22		South School	137	7	130	3½	6½	Public Money	1,800	100	....
23		Washing'n St. Sch'l	52	....	52	4	7	Public Money	....	....	....
24		West Middle School	134	....	....	3 y., 3 m.	6	Public Money	2,400	....	....
25		Miss Sperry's	15	2	13	2½	6	Tuition	....	....	....
26		Miss Thrall's	6	....	6	4 y., 5 m.	6 y., 11 m.	Tuition	....	....	....
27	Killingly, Danielson	Miss Young's	10	3	7	....	....	Tuition	....	....	....
28	Manchester, S. Manchest'r	Ninth School Dist.	242	20	222	2	7	Public Money	1,800	....	....
29	Meriden	Misses Pinks'	18	....	18	3½	6½	Tuition	....	....	....
30	Middletown	Miss Watrous's	15	....	15	4	7	Tuition	....	....	....
31	Milford	Froebel	6	1	5	3	6	Tuition	....	....	....
32	Naugatuck	Miss Soule's	11	...	....	3½	6	Tuition	....	....	....
33	New Britain	Burritt School	96	2	94	3	7	Public Money	725	25	....
34		East Street School	75	....	75	4	8	Public Money	732	35	....
35		Central	34	3	31	3 y., 7 m.	7 y., 3 m.	Public Money	700	....	....
36		Northend	71	....	71	3 y., 4 m.	7	Public Money	700	....	....
37		Rockwell	60	6	54	3	7	Public Money	725	....	....
38		State Normal	101	...	101	3 y., 10 m.	7 y., 4 m.	Public Money	2,075	....	....
39	New Haven	Day District	54	....	54	3 y., 11 m.	6 y., 3 m.	Public Money	800	....	....
40		Dwight	55	....	55	4	6 y., 7 m.	Public Money	850	....	....
41		Edwards Street	95	....	95	4	6 y., 4 m.	Public Money	850	....	....
42		Fair Street	92	....	92	4	7	Public Money	1,100	....	....
43		Hamilton	100	....	100	4 y., 2 m.	7 y., 8 m.	Public Money	1,400	....	....
44		Elm City No. 1	120	9	111	2 y., 11 m.	7	Subscription	....	....	....
45		Elm City No. 2	34	8	26	3	6	Subscription	....	....	....
46		Skinner School	52	....	52	4 y., 6 m.	7 y., 6 m.	Public Money	850	40	....
47		Welch	63	....	63	4	7	Public Money	900	....	....
48		Winchester	89	....	89	4 y., 11 m.	7 y., 3 m.	Public Money	1,200	....	....
49		Miss Chapman's	41	1	40	3	7	Tuition	....	....	....
50		Miss Leighton's	14	4	10	3 y., 4 m.	6	Tuition	....	....	....
51		Miss Livermore's	47	1	46	3 y., 6 m.	12	Tuition	....	....	....
52		Miss Stiles's	15	1	14	3 y , 4 m	6 y., 7 m.	Tuition	....	....	....
53		West End Institute.	20	....	20	5	8	Tuition	....	....	....
54	New London	....	17	4	13	3	6	Tuition	....	....	....
55	New Milford	....	30	....	30	4	12	Tuition	....	....	....
56	Norwalk	Center School	62	....	62	3½	7 y., 4 m.	Public Money	550	126.23	50
57		Franklin Street	75	....	75	3 y., 10 m.	8 y., 1 m.	Public Money	650	50	....
58		Over River	55	....	55	4 y., 2 m.	7	Public Money	700	45	....
59	Norwalk, South Norwalk.	Concord Street	185	....	....	4	8	Public Money	650	30	....
60	Norwich	Broadway	30	....	30	4	6	Public Money	550	....	....
61		Free Academy	41	3	38	3	7	Subscription	....	....	....
62		Providence Street	33	....	33	4	7	Public Money	400	10	....
63		Laurel Hill	40	....	40	4	6	Public Money	400	....	....
64	Norwich, Taftville	Wequonnoc	49	....	49	4 y., 2 m.	7	Public Money	880	200	30
65	Plymouth, Terryville	Terryville	54	....	54	3 y., 9 m.	8	Public Money	390	35	....
66	Redding	Miss Sanford's	7	....	7	4	8	Tuition	....	....	....
67	Ridgefield	Ridgefield	35	....	35	3½	6	*	....	....	....
68	Salisbury	Town	36	3	33	3	6	Public Money	450	4	....
69	Stamford	West Stamford	68	2	66	3	7	Public Money	450	140	....
70		Miss Hoyt's	23	1	22	3	9	Tuition	....	....	....
71	Stratford	Froebel	24	2	22	3	7	Tuition	....	....	....
72	Wallingford	Colony Street	53	6	47	3 y , 1 m.	7	Public Money	800	100	....
73		South Main Street	51	7	44	2 y., 8 m.	6 y., 7 m.	Public Money	800	....	....
74	Waterbury	St. Margaret's	18	2	16	3	6	Tuition	....	....	....
75		Free	55	15	40	2	6	Subscription	....	....	....
76	West Hartford	Center	4	1	3	3 y., 5 m.	7	Public Money	370	....	40.25
77	Winchester, West Winsted	West Winsted	72	....	72	3 y., 6 m.	8	Public Money	600	40	30
78	Windham, Willimantic	Natchaug	95	12	83	2 y., 11 m.	7 y., 10 m.	Public Money	1,470	50	....
79		State Normal	112	21	91	3 y., 3 m.	7 y., 2 m.	Public Money	1,700	125	....
80	Windsor	....	40	6	34	3	7	Public Money	400	15	....
81		Poquonock	20	3	17	3	7	Public Money	400	....	....
82	Woodbury, N. Woodbury.	North Woodbury	13	1	12	3	8	Tuition	....	....	....

* Supported entirely by Mrs. P. M. Bryson.

† Children pay 5 cents a week for material.

ESSIONS		BUILDING.								
How many each day?	How many hours?	Building where sessions are held.	Is there a kindergarten building?	When built?	Cost.	Is there a piano in the kindergarten?	Is any primary school work done?	Number of kindergartners.	NAME OF PRINCIPAL.	
2	3	Center School	No	......	......	No	No	2	Alice Griswold.	1
1	4	Ward Building	No	......	......	Yes	Yes	2	Fannie A. Smith.	2
2	4	St. Paul's Par. Bldg.	No	......	......	Yes	Yes	2	Mrs. B. F. Walker.	3
1	3	Private House	No	......	......	Yes	Yes	1	Mrs. Minnie D. Booth.	4
1	3	Private House	....	......	......	....	Yes	1	Marie Thérèse G. de la Perrière.	5
2	4½	North Side School	No	......	......	Yes	Yes	2	Bessie F. Lobdell.	6
2	4	South Side School	No	......	......	Yes	Yes	3	Grace L. Peck.	7
2	4¼	1st Dist. Sch. Bldg.	No	......	......	Yes	Yes	2	Florence J. Pierce.	8
1	3	Private House	No	......	......	Yes	Yes	1	Ethel A. Wilcox.	9
1	3	2d North School	No	......	......	Yes	No	2	Mrs. A. P. Doolittle.	10
2	4	Greenwich School	No	......	......	Yes	No	1	May L. Bradford.	11
1	3	Private House	....	......	......	Yes	No	1	Frances P. Holden.	12
2	4½	Greenwich School	No	......	......	Yes	Yes	1	Nellie M. Sampson.	13
1	2¾	Kindergarten Bldg.	Yes	1893	$27,000	Yes	No	5	Anne Burr Wilson.	14
1	3	Kindergarten Bldg.	Yes	1888-89	13,000	Yes	No	6	Florence Page.	15
1	3	Charter Oak School	No	......	......	Yes	......	2	Mabel F. White.	16
1	3	Lawrence St. School	No	......	......	Yes	No	4	Eva L. Marshall.	17
1	2½	North East School	No	......	......	Yes	No	3	Georgia M. Moseley.	18
2	5	North West School	No	......	......	Yes	Yes	2	Alice S. Hawkins.	19
1	3	Public School	No	......	......	Yes	No	3	Kate P. Safford.	20
1	3	2d North School	No	......	......	Yes	No	4	Susan E. Towne.	21
1	3	South School	No	......	......	Yes	No	4	C. L. McMurray.	22
1	2½	Washington St. Sch'l	No	......	......	No	No	2	Mary M. Bennett.	23
1	3	West Middle School	Yes	1895	40,000	Yes	No	5	Adella M. Woodcock.	24
1	3	Y. M. C. A. Bldg.	No	......	......	Yes	Yes	1	Mary B. Sperry.	25
1	3	Private House	No	......	......	Yes	Yes	1	Ida R. Thrall.	26
1	3	St. Alban's Par. R'm	No	......	......	Yes	......	1	Susanne Young.	27
2	4½	Public School	....	......	......	Yes	No	3	Georgianna Minor.	28
1	3	Palace Block	No	......	......	Yes	No	1	Ida K. Pinks.	29
2	3½	Private House	No	......	......	Yes	Yes	1	Anne T. Watrous.	30
1	3	Private Dwelling	No	......	......	Yes	Yes	2	Clara P. Gunn.	31
1	3	Private Dwelling	No	......	......	Yes	No	1	Mary C. Soule.	32
1	2½	Burritt School	No	......	......	Yes	No	2	M. Josephine Barry.	33
1	2½	East Street School	No	......	......	Yes	Yes	2	Ella J. Beckley.	34
1	2½	Rented building	No	......	......	Yes	No	2	Elizabeth Welles.	35
1	2	Northend School	No	......	......	Yes	Yes	2	Mary C. Frink.	36
1	2½	Rockwell School	No	......	......	Yes	No	2	Bertha S. Dates.	37
2	3	Normal School	....	......	......	Yes	Yes; afternoon	3	Fanniebelle Curtis.	38
1	2½	Rented Store	No	......	......	Yes	No	2	Ellen Hill.	39
1	2½	Kindergarten Bldg.	Yes	1895	3,961	Yes	No	2	Lottie M. Hall.	40
1	2½	Edwards St. School.	No	......	......	Yes	No	2	Isabel B. Bird.	41
1	3	Fair Street School	No	......	......	Yes	No	3	Sarah E. Cook.	42
1	3	Hamilton School	No	......	......	Yes	No	3	Jessie I. Scranton.	43
1	3	Welcome Hall, Oak St.	No	......	......	Yes	No	6	Rachel King.	44
1	3	155 Lloyd Street	No	......	......	No	No	2	Emily Bullard.	45
1	2½	Skinner School	No	......	......	Yes	No	2	Gertrude A. Woodruff.	46
1	2½	Welch School	No	......	......	Yes	Number, form, and color	2	Annabel Baldwin.	47
1	2½	Winchester School	No	......	......	Yes	Yes	3	Emma Jeannette Tuttle.	48
1	5	Private House	....	......	......	No	Yes	1	Carrie Chapman.	49
1	3	Kindergarten Bldg.	Yes	1893	......	Yes	Yes; a little	1	Helen E. Brown.	50
1	3	Private Dwelling	....	......	......	Yes	Yes	1	Mary C. Livermore.	51
1	2½	Private Dwelling	No	......	......	Yes	Yes	1	Caroline C. Griggs.	52
1	3½	West End Institute.	No	......	......	Yes	Yes	1	M. L. Crosette.	53
2	3	Rented Building	No	......	......	Yes	Yes	1	Marian T. Peck.	54
2	5	Private House	No	......	......	Yes	Yes	1	Mary C. Wells.	55
1	2½	Center School	No	......	......	Yes	No	2	Katharine E. White.	56
1	2½	Franklin St. School	No	......	......	No	Yes	2	Sadie G. Campbell.	57
1	2½	Over River School.	No	......	......	Yes	No; there is a connecting class in the afternoon	2	Mary E. Musson.	58
1	2½	Concord St. School.	No	......	......	Yes	No	2	Edythe S. Gates.	59
1	3	Broadway School	No	......	......	Yes	No	1	Lucy B. Stone.	60
1	3	Broadway	No	......	......	Yes	No	1	Frederica Beard.	61
1	3	Providence St. Sch'l	....	......	......	Yes	No	1	S. C. Whittlesey.	62
1	3	Laurel Hill School	No	......	......	Yes	No	1	Annie P. Torrance.	63
2	5	Public School Bldg.	No	......	......	Yes	Yes	2	Grace H. Bowers.	64
2	4½	Main Building	No	......	......	No	Yes	2	R. Elsie Miller.	65
1	3	......	....	......	......	....	Yes	1	Miss M. H. Sanford.	66
1	3	Center School Bldg.	No	......	......	Yes	No	2	Adelaide M. Rogers.	67
2	5	Academy	No	......	......	No	Yes	1	Mary E. Pierce.	68
2	3½	West Stamford Sch'l	No	......	......	No	No	1	Mary Lee Howell.	69
1	3	Private House	....	......	......	Yes	Yes	2	Carrie A. Hoyt.	70
1	3	Private House	No	......	......	Yes	Yes	2	Mrs. M. B. DeLacour.	71
2	3	Colony St. School	No	......	......	Yes	Yes; in afternoon	2	Edna L. Brown.	72
1	2¼	So. Main St. School	No	......	......	Yes	No	2	Leila A. Maltby.	73
1	3	St. Margaret's Sch'l	No	......	......	Yes	No	2	Emma S. Kelsey.	74
1	3	3d Congregat'n'l Ch.	....	......	......	Yes	No	1	Harriet J. Dutton.	75
2	5	Center Primary	No	......	......	No	Yes; mostly primary	1	Charlotte A. Butler.	76
2	4½	......	No	......	......	Yes	Yes	2	Louise Fenton.	77
1	2½	Natchaug School	No	......	......	Yes	Yes	3	Kate W. Hutchinson.	78
2	3¾	Public School Bldg	No	......	......	Yes	Only incidentally	4	Blanche H. Boardman.	79
1	3	3d District School	....	......	......	Yes	No	1	Alice E. Morgan.	80
1	3	Public School	No	......	......	No	No	1	Clara G. Smith.	81
2	5	Private Dwelling	....	......	......	Yes	Yes	1	Mrs. N. M. Strong.	82

NORMAL SCHOOLS

The three Normal Schools now have 501 students, of whom 306 are in the first year and 195 in the second.

The number of students in the Normal Schools in the years 1895-6 was as follows:

New Britain	237
Willimantic	87
New Haven	199
Total	523

The number of graduates in 1896 was as follows (see pp. 70-73):

New Britain	55
Willimantic	26
New Haven	66
	147

Of these graduates 137 are teaching.

The entering classes in the years 1894, 1895, and 1896, were as follows:

	1894	1895	1896
New Britain	108	148	123
Willimantic	37	41	77
New Haven	133	124	109

The number of students in these schools at the beginning of the year 1896-7 was:

	Juniors	Seniors	Total
New Britain	120	91	211
Willimantic	*77	40	117
New Haven	109	164	173
	306	195	501

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* Six entered in the winter of 1896.

It is satisfactory to be able to report that there is a steady though not rapid improvement in the education of those who enter these schools.

The education of those entering in the years 1889–96 has been as follows :

TABLE XL

	NEW BRITAIN					WILLIMANTIC					NEW HAVEN					Total
	High School				Common School	High School				Common School	High School				Common School	
	4 Years	3 Years	2 Years	1 Year		4 Years	3 Years	2 Years	1 Year		4 Years	3 Years	2 Years	1 Year		
1889....	32	2	11	9	50	5	1	2	4	15	....	....	....	....	....	131
1890 ...	31	17	18	20	86	8	2	2	2	28	....	....	....	....	....	214
1891....	35	8	14	18	79	4	2	5	2	26	....	....	....	....	....	193
1892....	28	17	21	21	71	5	2	5	3	31	....	....	....	....	....	204
1893....	31	11	15	7	58	11	1	6	3	20	59	7	10	8	14	261
1894....	26	11	18	10	43	12	3	2	5	15	64	15	16	10	28	278
1895....	51	14	20	14	46	17	2	0	4	18	64	9	15	9	27	310
1896....	67	11	13	11	21	40	4	8	4	21	46	15	14	5	22	302

The State has made generous and adequate provision for the training of teachers. The Normal Schools can now prepare all who begin to teach.

The profession of teaching is becoming year by year more attractive to educated young women. There is prospect of permanent tenure and of fair though not large salary. The average salary for the state is $42 a month for nine months.

Very noticeable progress has been made in the equipment of these schools with libraries. Annually a substantial sum is expended for books, and the best authorities in history, literature, and science for use by teachers and students are liberally supplied. These libraries are aids in forming a healthy literary taste among the students.

All intelligently interested in education substantially agree that teachers should be prepared for their work. This preparation is held to include much practice in the actual business of teaching as well as study of the principles upon which skillful teaching rests.

The trouble in properly estimating the value of training is that "order" has been unduly magnified and placed too high as an end. The teacher who fails to keep order is the bugbear of committees. "She must have good government" is the constant demand. But the teacher, man or woman, who keeps order by an iron hand, by a sharp tongue, or by any wrong means is much more dangerous than the kind and patient though not rigid disciplinarian. The silence and obedience of terror or of abject submission have nothing in common with the system and order of a steady self-control in the scholar. The school which is orderly only when the regular teacher is at hand and in sight has not made right-minded children: indeed, such "discipline" is positively harmful. Preliminary study and practice on the part of the teacher can do much to prevent failure in managing children.

These institutions are giving increased attention to the teaching of young children. At New Britain and Willimantic are Kindergartens which form integral parts of the training system.

The observation and knowledge of the Kindergarten ought not to be restricted to those who intend to teach in Kindergartens. The future primary teacher will have young children in her charge and may receive children from the Kindergarten and ought to be acquainted with the purpose of the exercises, employments, and games. All teachers should, therefore, go to the Kindergarten as well as to the higher schools for practice. It is important too that the students who are destined to a Kindergarten should understand the work to which the Kindergarten is preparatory and should derive a part of their professional experience in the higher schools. Attempts to treat the Kindergarten as a separate institution having aims and methods of its own different from those which should prevail in other schools will cause the whole training to be unsuccessful. It is a part of a complete scheme of instruction, designed for a preliminary training of those aptitudes which are afterwards more fully developed.

The need of trained teachers is felt more and more each year by those who have schools in charge. It is admitted that teaching is a fine art; that it has rules and laws which can be stated and these rules have their justification in human nature; that there are right ways and wrong ways of managing and teaching, of presenting different subjects, of organizing a school and of economizing the time and strength of teacher and scholar, and reasons can be clearly given why some are right and others are wrong. This is generally admitted with reference to primary schools; though applicable to all schools alike, it has never in this state received any recognition in the sphere of higher education.

Much has been done by the state in the most liberal way in adding to the usefulness of the Normal Schools. These schools have worthily responded to the demands upon them and have in five years sent out 614 students, most of whom are now teaching with noteworthy success. The schools themselves have become the centers of healthy educational activity and influence.

The possibilities of these schools for more extended and beneficial public service are not yet exhausted. They might with great advantage exercise for a time supervisory powers over the graduates who have no true supervision. They might with propriety place themselves in friendly relations with all schools near at hand and render to them and receive from them much useful service. The libraries might become accessible under proper regulations to all graduates. There might be periodical conferences on important branches of teaching and the benefits of a professional extension course carried to all enterprising and thoughtful teachers.

In these schools there is found a common desire to promote the education of young children by training skillful and earnest teachers. The schools send out year by year a body of serious and devoted teachers of whom the state may well be proud,—teachers skilled in their methods of work, qualified by accurate knowledge and by personal enthusiasm.

The following table shows towns from which students have entered the Normal Schools in the years 1883–1896 inclusive, with the number that entered from each town in each year:

TABLE XLI

	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896
HARTFORD CO.														
Hartford	7	17	12	15	11	12	17	21	25	22	27	16	22	17
Avon	..	..	..	..	..	1	1	.	..	1	..	..	2	..
Berlin	2	..	..	..	..	4	2	..	..	..	..	4	2	..
Bloomfield	1	2	2	..	2	1	2	3	1	..	..	..	..	..
Bristol	2	..	..	1	5	7	1	..	3	3	4	3	3	4
Canton	..	..	..	..	..	..	1	1	..	..	1	..	..	..
East Granby	..	..	..	..	..	..	..	1	..	..	..	..	..	1
East Hartford	..	..	1	3	..	2	5	3	1	3	2	1	3	1
East Windsor	3	3	1	2	1	4	3	1	..	..	2	1	4	1
Enfield	4	8	6	2	..	1	1	7	2	1	3	4	7	2
Farmington	2	..	2	2	..	..	2	6	2	..	1	4	2	1
Glastonbury	..	1	..	2	1	..	..	1	1	2	..	..	..	..
Granby	..	2	2	..	..	..	1	..	..	..	..	..	..	..
Hartland	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Manchester	1	..	4	3	4	3	3	5	5	4	1	1	3	2
Marlborough	..	..	..	..	..	..	..	..	..	..	1	1	..	..
New Britain	6	8	9	14	16	10	12	20	15	24	24	16	14	19
Newington	..	5	..	2	1	1	2	2	2	..	2	..	1	..
Plainville	..	..	..	1	2	..	..	2	..	1	1	..	5	..
Rocky Hill	..	2	1	1	..	..	..	..	1	2	..	..	..	..
Simsbury	..	..	..	..	1	..	..	2	..	..	3	1	3	2
Southington	..	1	..	1	..	1	3	1	1	2	4	3	2	1
South Windsor	..	1	..	..	3	..	1	3	1	4	..	..	..	..
Suffield	..	..	..	..	4	1	3	3	..	..	..	..	..	1
West Hartford	..	..	1	1	..	1	5	3	2	3	..	..	..	1
Wethersfield	..	3	4	2	1	6	2	2	..	2	2	1	4	2
Windsor	..	1	1	1	..	..	1	1	1	..	1	..	..	4
Windsor Locks	..	2	..	6	3	4	3	3	2	3	8	1	3	2
NEW HAVEN CO.														
New Haven	2	1	3	1	4	3	2	2	2	1	68	61	38	38
Ansonia	..	..	..	..	..	..	1	1	..	..	4	4	13	3
Beacon Falls	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Bethany	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Branford	..	..	..	..	..	..	.	3	1	5	..	2	5	4
Cheshire	1	2	..	..	..	1	1	4	1	2	1	1	..	..
Derby	..	..	3	3	2	2	1	3	..	..	1	1	..	..
East Haven	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Guilford	..	1	..	1	..	..	..	..	..	1	1	3	1	1
Hamden	..	..	..	..	1	..	..	..	1	2	2	2	2	..
Madison	..	..	1	2	..	..	..	..	1	2	5	..	4	..
Meriden	3	3	4	6	11	7	10	7	12	9	6	2	8	13
Middlebury	..	..	..	..	..	..	..	..	2	1	..	..	..	..
Milford	..	..	1	..	..	1	4	..	1	2	2	3	..	..
Naugatuck	..	..	..	..	..	..	..	..	1	2	..	..	2	..
North Branford	..	..	1	..	2	..	..	..	..	2	1	..	1	..
North Haven	..	1	..	1	1	..	2	..	..	..	..	..	..	..
Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Orange	1	..	..	..	..	1	..	1	1	1	5	3	4	3
Seymour	..	..	..	..	1	2	1	1	..	..	1	..	..	3
Southbury	1	1	..	..	..	..	..	..	..	..	..	2	..	..
Wallingford	2	4	4	3	5	..	2	3	6	7	1	9	2	2
Waterbury	..	2	4	1	3	6	2	15	4	1	2	3	6	8
Woodbridge	..	1	..	..	..	..	..	..	..	..	1	..	..	2
NEW LONDON CO.														
New London	2	2	2	1	..	..	2	1	1	..	1	1	..	3
Norwich	2	5	1	2	1	2	5	5	3	5	7	6	5	18
Bozrah	..	..	..	..	..	..	..	1	..	..	..	1	..	..
Colchester	1	2	1	1	1	..	1	1	2	1	1	1	1	..
East Lyme	..	..	..	..	..	..	..	..	1	..	1	1	..	1
Franklin	..	..	..	1	..	..	..	..	1	..	..	..	..	..
Griswold	..	..	2	1	..	..	..	..	1	..	..	..	1	..
Groton	3	1	..	..	..	..	..	..	1	..	..	..	1	2
Lebanon	..	1	..	1	..	1	2	2	3	1	1	..	1	5
Ledyard	..	..	4	..	1	..	..	..	2	1	..	..	..	..
Lisbon	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Lyme	..	..	2	1	1	..	..	..	..	1	..	..	..	..
Montville	..	..	..	..	..	..	1	..	2	..	1	1	..	2
North Stonington	..	..	1	2	1	..	..	..	1	1	..	..	3	2
Old Lyme	..	..	1	2	..	..	..	..	..	..	..	1	1	..
Preston	..	..	..	..	..	..	1	..	1	1	1	..	2	3
Sprague	..	..	..	..	..	2	2	..	..	..	1	1	..	..
Stonington	..	..	..	1	2	2	..	2	3	3	..	..	1	6
Waterford	..	..	..	..	..	..	..	..	..	..	..	..	..	1

	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896
Fairfield Co.														
Bridgeport	..	..	..	1	3	..	..	..	..	2	..	5	1	2
Danbury	1	..	..	1	..	..	1	..	2	2	1	..	2	4
Bethel	..	..	2	..	..	..	..	1	..	2	..	2	2	2
Brookfield	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Darien	..	..	..	1	..	..	2	..	..	..	..	..	..	..
Fairfield	..	.	1	..	..	..	..	..	..	1	1	1	2	..
Greenwich	..	1	1	..	..	..	3	..	..	1	..	..	1	1
Huntington	..	..	1	..	..	1	..	..	1	1	1	3	2	3
New Canaan	1	..	..	..	1	..	1	..	..	..	..	..	1	..
New Fairfield	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Newtown	..	1	2	1	..	1	..	1	2	3	..	1	1	1
Norwalk	1	1	1	4	4	2	3	3	2	5	5	7	11	4
Redding	..	..	..	3	1	..	1	..	..	..	..	1	..	..
Ridgefield	..	1	..	1	1	..	1	..	..	..	..	..	.	2
Stamford	1	2	1	1	1	1	5	2	5	2	9	4	4	2
Stratford	..	1	1	2	2	1	..	1	1	..	2	5	3	2
Trumbull	..	..	..	..	..	..	..	3	..	1	..	..	..	..
Westport	..	..	2	1	..	1	1	..	3	1	1	2	..	2
Wilton	..	..	..	..	..	..	..	..	..	1	..	..	2	..
Windham Co.														
Brooklyn	..	..	..	..	..	..	..	..	1	5	..	..	1	1
Ashford	..	..	..	..	..	..	..	1	1	1	1	2	..	..
Canterbury	..	..	1	1	..	1	1	1	1	..	..	..	3	..
Chaplin	..	..	..	..	..	2	..	1	..	..	..	..	2	1
Eastford	..	..	1	..	..	..	1	..	..	..	..	..	..	..
Hampton	..	1	1	..	2	..	..	..	..	1	..	..	1	..
Killingly	..	..	..	..	..	..	..	..	1	..	2	1	..	1
Plainfield	..	..	..	..	..	1	1	2	..	1	3	2	1	..
Pomfret	..	..	..	..	..	..	..	1	..	1	..	..	2	..
Putnam	..	..	..	..	..	2	..	..	1	..	..	1	1	..
Scotland	..	..	..	..	..	..	1	1	..	2	..	1	..	..
Sterling	..	..	..	..	..	..	1	..	..	4	...	..	..	..
Thompson	..	..	..	..	..	1	1	..	..	1	2	..	1	1
Windham	..	..	..	..	..	1	5	15	13	11	11	12	6	8
Woodstock	..	2	2	..	..	..	1	..	..	..	...	..	..	..
Litchfield Co.														
Litchfield	1	1	1	..	1	1	2	..	..	3	1	1	..	..
Barkhamsted	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Bridgewater	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Canaan	..	..	..	..	1	1	..	..	3	..	..	1	..	1
Colebrook	..	..	1	..	..	..	..	..	..	..	..	1	..	..
Cornwall	..	1	..	..	..	..	..	..	..	..	..	2	2	..
Goshen	..	..	1	..	..	..	..	..	2	..	..	..	1	..
Harwinton	..	..	..	..	1	..	1	..	..	1	..	..	1	..
Kent	..	..	1	1	1	..	..	..	..	..	..	..	1	2
Morris	..	..	1	1	..	1	..	..	..	..	..	..	1	1
New Hartford	..	..	1	2	1	..	2	..	1	..	1	..	..	..
New Milford	..	..	..	..	..	..	..	..	..	1	..	3	2	..
Norfolk	..	..	..	..	..	..	..	..	..	..	..	..	1	1
North Canaan	..	..	1	..	1	..	..	1	..	..	..	..	..	1
Plymouth	3	..	..	1	..	2	6	..	2	4	..	1	2	2
Roxbury	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Salisbury	..	..	..	1	1	..	3	1	1	1	2	2	3	1
Sharon	..	2	..	..	1	1	..	..	..	..	2	..	..	..
Thomaston	..	..	..	..	..	..	..	..	..	1	..	..	3	2
Torrington	1	3	1	..	2	1	3	..	1	2	1	..	..	1
Warren	..	..	..	..	..	..	1	..	..	..	2	..	1	..
Washington	1	..	1	..	..	1	1	1	1	1	..	1	..	..
Watertown	..	3	..	..	1	2	1	..	..	..	1	..	..	1
Winchester	..	1	..	1	1	3	2	..	4	1	3	4	3	..
Woodbury	..	..	..	..	..	..	1	..	..	..	..	.	..	1
Middlesex Co.														
Middletown	1	6	2	..	..	4	8	2	..	4	4	8	2	2
Haddam	..	2	..	..	..	2	..	..	..	..	..	4	2	1
Chatham	..	..	1	..	..	3	3	6	3	..	2	...	..	1
Chester	..	..	..	..	1	1	..	..	..	..	..	...	..	2
Clinton	..	..	..	..	..	..	..	1	..	..	..	...	..	1
Cromwell	..	1	..	1	..	..	1	..	1	1	..	...	..	..
Durham	..	..	..	1	2	2	1	..	..	..	..	1	2	..
East Haddam	..	..	1	1	..	1	..	1	2	..	1	..	..	..
Essex	..	..	..	3	1	2	1	1	1	1	..	..	..	..
Killingworth	..	1	1	..	..	..	..	1	..	1	..	..	..	..
Middlefield	..	..	..	1	1	2	..	..	1	..	1	..	..	..
Old Saybrook	..	..	..	.	..	1	..	..	..	..	..	..	..	..
Portland	..	1	2	1	3	3	..	4	4	2	1	..	3	1
Saybrook	..	..	..	..	1	2	..	..	1	1	..	3	2	1
Westbrook	..	..	..	..	1	1	..	..	..	..	..	...	1	..

	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896
TOLLAND CO.														
Tolland	..	..	..	..	..	..	..	..	..	..	..	..	2	1
Andover	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Bolton	..	1	1	1	..	..	1	..	..	..	1	1	...	..
Columbia	..	1	1	1	..	1	..	1	1	..	..	2	1	1
Coventry	..	..	..	..	..	1	1	2	..	3	5	2	2	..
Ellington	..	..	1	1	1	1	1	1	..	1	..	..	...	..
Hebron	..	..	..	..	2	..	..	..	3	3	..	..	1	..
Mansfield	..	1	1	..	1	1	1	2	..	2	4	..	3	1
Somers	..	..	..	..	..	..	..	..	..	..	..	1	...	..
Stafford	..	1	..	..	..	..	..	2	..	1	..	2	3	1
Willington	..	..	..	..	..	..	..	..	..	..	..	..	...	1
Vernon	..	1	3	1	..	1	1	2	1	2	..	..	1	2
Other States	..	1	2	8	6	8	2	7	10	7	4	7	16	23

The students of the Normal Schools entering in the year 1895–96, came from towns in the several counties as follows:

TABLE XLII

	New Britain	Willimantic	New Haven	Total
Hartford	58	0	3	61
New Haven	18	1	59	78
New London	3	41	0	44
Fairfield	7	2	16	25
Windham	0	13	0	13
Litchfield	11	1	2	14
Middlesex	4	1	4	9
Tolland	0	5	1	6

The names of the graduates of 1896, and the places where they were teaching in the fall term, are given below:

NEW BRITAIN

NAME	HOME ADDRESS	TEACHING AT
Mabel E. Avery	*Wapping*	Warehouse Point
Sarah A. Barwald	*Hartford*	East Lyme
Ida L. Bidwell	*Middletown*	Maromas
Bessie I. Bigelow	*Plantsville*	New Britain
Myrtie L. Botelle	*Cromwell*	Norfolk
Jennie Borland	*Thompsonville*	Redding Ridge
Harriet E. Brown	*Yalesville*	Middletown
Isabella C. Cornelius	*Oneida, Wis.*	Cromwell
Lottie A. Crowell	*Middletown*	Glastonbury
Rose E. Day	*Lakeville*	Middletown
Kate E. Decker	*Wethersfield*	Bristol
Minnie R. Donaldson	*Winsted*	Canton
Jennie Dunbar	*New Britain*	New Britain
Minnie A. Ferriss	*New Milford*	Stevenson
Mary A. Finnegan	*New Britain*	Collinsville
Maggie V. Gallagher	*Farmington*	Middletown
V. Edith Gillette	*New Britain*	Montclair, N. J.
Minna Hellman	*Hartford*	Hartford

NAME	HOME ADDRESS	TEACHING AT
Bessie H. Hogan	*Unionville*	Bloomfield
Ida G. Holcomb	*Simsbury*	Ellington
Ella Huntting	*Hartford*	Bloomfield
Euphemia D. Inglis	*Middletown*	Middletown
Emma A. Johnson	*Winsted*	East Winsted
Charlotte L. Kelsey	*New Britain*	Calhoun, Ala.
Ann J. F. Kennedy	*Hartford*	Hartford
Mary E. Lacy	*Hartford*	New Britain
Ada D. Littlefield	*Winterport, Me.*	Montclair, N. J.
Adelaide A. Moore	*Hartford*	Williamst'n, Mass.
Ellen A. Moriarty	*Hartford*	Bloomfield
Bridget T. Mulcahy	*Hartford*	Hartford
Julia A. Mulcahy	*West Winsted*	West Cornwall
Agnes G. Murphy	*Middletown*	Middletown
Katherine A. O'Brien	*Old Lyme*	New Britain
Grace E. Pendleton	*Somersville*	Everett, Mass.
E. Maud Purinton	*Hartford*	Yalesville
Elizabeth F. Rose	*Taftville*	Taftville
Martha I. Shaw	*Meriden*	Plainville
Emily C. Smith	*New Britain*	
Sadie E. Stevens	*So. Meriden*	Middletown
Katherine E. Stoughton,	*East Hartford*	Bristol
Anna S. Tobin	*Windsor Locks*	Naugatuck
Mabel E. Tyler	*Hartford*	Middletown
Harriet B. Wakelee	*Derby*	Naugatuck
Ida A. Young	*Middletown*	Thompsonville

KINDERGARTNERS

NAME	HOME ADDRESS	TEACHING AT
Elizabeth Balch	*New Britain*	
Ella J. Beckley	*New Britain*	New Britain
Alice J. Blake	*New Britain*	New Britain
Ursula H. Brainard	*Higganum*	Watertown
Florence L. Davis	*New Bedford, Mass.*	N. Bedford, Mass.
Viola A. N. Doolittle	*Yalesville*	West Hartford
Amalie Feibel	*Bridgeport*	New Britain
Jennie M. Frazier	*Hartford*	Studying
Lucy A. Hazen	*Haddam*	Taftville
Mary F. Hibbard	*New Britain*	Montclair, N. J.
S. Maude Richard	*Hartford*	Willimantic

WILLIMANTIC

NAME	HOME ADDRESS	TEACHING AT
Alice M. Alford	*Willimantic*	Webster, Mass.
Grace Arnold	*Putnam*	Willimantic
Egbert A. Bass	*Coventry*	Andover
Katherine L. Browne	*Willimantic*	Black Hall
Bertha Carpenter	*Moosup*	Willimantic
Alice M. Fuller	*Hampton*	East Windsor Hill

NAME	HOME ADDRESS	TEACHING AT
Grace L. Hanna	*Montville*	Stonington
Lizzie T. Hayes	*Norwich*	Greeneville
Rosa J. Ives	*Lyme*	Griswold
Myrtice Kingsbury	*Thompson*	Willimantic
Alice E. Mason	*Mansfield*	Mansfield Center
Mary L. Murray	*Willimantic*	Stonington
Frances T. O'Neil	*Willimantic*	Turnerville
Frank E. Perkins	*South Coventry*	Plainfield
Clara Edna Remington	*Mansfield*	Mansfield
Louis H. Stanley	*Brooklyn*	West Hartford
Agnes C. Sugrue	*Willimantic*	Burnside
Bridget A. Sullivan	*Willimantic*	Highland Park
Cecelia M. Sullivan	*Norwich*	Plymouth
Coral E. Tracey	*Willimantic*	Willimantic
Rose L. Turner	*Norwich*	Orange, Mass.
Elizabeth L. Wheeler	*New London*	New London
Wells S. Wilcox	*Willimantic*	Norfolk
Mary A. Williams	*Willimantic*	(Kindergarten course)

KINDERGARTEN

Jessie M. Dimock	*Willimantic*	Chester
Katie Keeney	*North Coventry*	Windham

NEW HAVEN

NAME	HOME ADDRESS	TEACHING AT
Elma I. Augur	*Westville*	New Canaan
Lottie B. Balzer	*New Haven*	East Lyme
Nellie S. Beard	*Milford*	Shelton
Mary K. Berg	*South Norwalk*	Ridgefield
Elizabeth A. Brennan	*New Haven*	Naugatuck
Mabel J. Bromley	*New Haven*	New Haven
Jennie M. Campbell	*New Haven*	New Haven
Annie A. Cavanaugh	*Norwalk*	Woodbury
Theresa R. Cavanaugh	*Norwalk*	Ridgefield
Lucy A. Chavell	*Stratford*	Stepney
Mabel E. Curtiss	*Madison*	Forestville
Katharine T. Dargan	*New Haven*	New Haven
Katharine A. Dougherty	*Cornwall Bridge*	Naugatuck
Elizabeth B. Doyle	*New Haven*	Stonington
Ellen J. Doyle	*Bridgeport*	Easton
Josephine M. Eagan	*New Haven*	
Mary T. English	*New Haven*	Bethany
Marian Feuchtwanger	*New Haven*	N. Haven Eve. Sch.
Elizabeth A. Fleming	*New Haven*	Stevenson
Annette B. Fowler	*Guilford*	Naugatuck
Maria E. Geer	*East Norwalk*	East Norwalk
Elizabeth E. Gessner	*New Haven*	Warehouse Point
Eva A. Gorham	*Westville*	Saybrook

NAME	HOME ADDRESS	TEACHING AT
Bella Greenbaum	*New Haven*	Plattsville
Katharine T. Harty	*New Haven*	New Haven
Josephine A. Hayes	*New Haven*	New Haven
Alice M. Healey	*Winsted*	West Hartford
Lottie H. Hotchkiss	*New Haven*	Morris Cove
Margaret M. Hurley	*Shelton*	
Agnes E. Hussion	*New Haven*	N. Haven Eve. Sch.
Ida Hyde	*New Haven*	Seymour
Eva L. Innis	*Stratford*	Stratford
Phoebe T. Ives	*Branford*	East Haven
M. Winnifred Jennings	*Greenfield Hill*	Trumbull
Ada B. Judson	*New Haven*	New Haven
Genevieve E. Keefe	*New Haven*	N. Haven Eve. Sch.
Alice L. Kirtland	*Yalesville*	Windsor
Anna E. Krause	*New Haven*	Manchester
Lula A. Lennon	*New Haven*	New Haven
Christine G. McCormick	*New Haven*	Stevenson
Katharine A. McHugh	*New Haven*	
Julia I. McLoughlin	*New Haven*	New Haven
M. Adella Merwin	*Cornwall Hollow*	New Haven
Eva B. Myers	*Bethel*	Reynolds Bridge
Martha A. Morrison	*Bethel*	Bethel
Margaret A. Murphy	*New Haven*	Bethany
Susan T. Newell	*Branford*	Branford
Marion E. Norton	*Wallingford*	Cobalt
S. Annie Norton	*Wallingford*	North Haven
Ellen K. O'Brien	*New Haven*	Waterford
Gertrude E. Osgood	*New Haven*	New Haven
Grace L. Pomeroy	*Easthampton, Mass.*	Somerville
Mary F. Reilly	*New Haven*	
Mabel E. Rochfort	*New Haven*	New Haven
Claude C. Russell	*East Lyme*	East Hartford
Alice M. Sanford	*New Haven*	Bethany
Louise Schmahl	*New Haven*	New Haven
Alice L. Scranton	*Wallingford*	Naugatuck
Augusta M. Scranton	*New Haven*	New Haven
Lucy M. Stevens	*Stamford*	
Margaret E. Sullivan	*Stamford*	E. Portchester
Mary P. Trounson	*East Norwalk*	Stamford
Mary F. Tucker	*New Haven*	New Haven
Ella P. Warner	*Highwood*	Collinsville
Alice A. Welton	*New Haven*	West Haven
Sarah M. Wilkinson	*Shelton*	Huntington

Reports of Principals.

New Britain.— Mr. Marcus White, principal of the New Britain School, makes the following report:

Mr. C. D. Hine,
Secretary of State Board of Education.

Sir:— The report of the State Normal-Training School for the year 1895–6 is herewith respectively submitted. The first term of the school year opened September 3d, with the following list of teachers:

Marcus White, Principal
Principles of Teaching

Ralph G. Hibbard
Reading

M. Gertrude Fenn
Drawing

Jane Darlington
Model Schools; Theory: Training

Elizabeth L. Allyn
Botany; Mathematics

Emily J. Parker
Drawing; English

Helen J. Bunce
Model School; Training

Gertrude L. Rhoades
Model School; Training

Mary G. Peabody
Training Schools; Training

Helena D. Cowles
Literature; Language

Jessie E. Guernsey
History; Geography

Lieut.-Col. Alfred L. Thompson
Military Drill

Bertha M. McConkey
Training Schools; Supervisor of Training

Carrie H. Conley
Cooking

Georgiana Minor
Kindergarten; Training

Minnie L. Clark
Model School; Training

Mary E. Greene
Training Schools; Training

M. Lizzie Scudder
Kindergarten

Margaret S. Hubbell
Singing

Mary A. Spear
Training Schools; Theory; Training

Emily B. Scarborough
Physical Training

Caroline T. Robbins
Physical Science

Frederick A. Verplanck
Principal of Schools at South Manchester

Evangeline St. C. Champlin
Librarian

Clara M. Washburn
Model School; Training

Annie L. Parker
Pianist and Gymnasium

Annie E. McNulty
Penmanship; Assistant in Physical Laboratory

Maud L. Gridley
Training Schools; Training

Fanniebelle Curtis
Kindergarten; Theory; Training

Lina D. Wilcox
Model School; Training

Marie Curtis
Assistant; Kindergarten

Mary E. Goodrich
Acting Librarian

Estelle M. Hart
Model School; Training

Jessie Simonson
Model School; Training

Florence M. Prince
Assistant; Kindergarten

Claribel Young
Assistant; Kindergarten

Edith M. Gridley
Training

Carrie A. Kauffmann
Singing

Soon after the opening of the school year it was found necessary, on account of the increased size of the school, to engage another teacher, and Miss Mary E. Wardwell was elected to take classes in mathematics and English. Miss Wardwell is a graduate of Wellesley, and was for a time teacher in Northfield Seminary. Miss Helena D. Cowles resigned her position as teacher of English January 1, 1896, and her work was assigned to Miss Emily J. Parker. Miss Champlin, who for some time had had charge of the library, was granted leave of absence, and Miss Mary E. Goodrich was chosen librarian during her absence. Leave of absence on account of illness was also granted for the spring term to Miss Caroline T. Robbins and Miss Emily B. Scarborough. Mr. Sumner W. Hinds, former principal of the Bridgewater, Mass., High School, and Miss Ruth Harper, a graduate of Dr. Anderson's Physical Training School, New Haven, were appointed to carry on their work.

The number of pupils enrolled during the year was:

NORMAL TRAINING DEPARTMENT	
Seniors	69
Juniors	123
KINDERGARTEN DEPARTMENT	
Seniors	13
Juniors	29
Special Students	3
Total	237

Attendance by Towns.—Fifty-two towns are represented, as follows:

Ansonia	1	Hartford	40	Portland	3
Avon	1	Hebron	1	Rocky Hill	1
Beacon Falls	1	Madison	1	Salisbury	5
Berlin	3	Manchester	5	Saybrook	3
Bloomfield	1	Meriden	9	Simsbury	4
Bridgeport	2	Middletown	10	Somers	2
Bristol	5	Naugatuck	2	Southington	4
Canterbury	1	New Britain	27	Stratford	1
Canton	1	New Haven	1	Thomaston	3
Colchester	1	Newington	1	Vernon	1
Danbury	1	New Milford	3	Wallingford	2
Derby	1	Newtown	1	Warren	1
Durham	2	Norfolk	2	Washington	1
East Hartford	4	Norwich	2	Waterbury	4
East Windsor	6	Old Lyme	1	Wethersfield	4
Enfield	10	Plainville	6	Winchester	6
Farmington	7	Plymouth	3	Windsor Locks	7
Haddam	4				

FROM WITHOUT THE STATE

Iowa	1	Rhode Island	2
Maine	1	Vermont	1
Massachusetts	7	Wisconsin	1
New York	4		

SUMMARY

Counties	Students	Towns
Hartford	137	19
New Haven	23	9
New London	4	3
Fairfield	5	4
Windham	1	1
Litchfield	24	8
Middlesex	22	5
Tolland	4	3
Total	220	52
From without the state	17	
Total	237	

DIPLOMAS GRANTED

Graduation exercises were held in Normal Hall June 17th. The address to the graduates was delivered by Senator Joseph R. Hawley. Diplomas were presented to the following list of graduates by George M. Carrington of the State Board of Education:

Normal Training Course:

Mabel E. Avery
Sarah A. Barwald
Ida L. Bidwell
Bessie I. Bigelow
Myrtie L. Botelle
Jennie Borland
Harriet E. Brown
Isabella C. Cornelius
Lottie A. Crowell
Rose E. Day
Kate E. Decker
Minnie R. Donaldson
Jennie Dunbar
Minnie A. Ferriss
Mary A. Finnegan
Maggie V. Gallagher
V. Edith Gillette
Minna Hellmann
Elizabeth H. Hogan
Ida G. Holcomb
Ella Huntting
Euphemia D. Inglis
Emma A. Johnson
Charlotte L. Kelsey
Ann J. F. Kennedy
Mary E. Lacy
Ada D. Littlefield
Adelaide A. Moore
Ellen A. Moriarty
Bridget T. Mulcahy
Julia A. Mulcahy
Agnes C. Murphy
Katherine A. O'Brien
Grace E. Pendleton
E. Maud Purinton
Elizabeth F. Rose
Martha I. Shaw
Emily C. Smith
Sadie E. Stevens
Katherine E. Stoughton
Anna S. Tobin
Mabel E. Tyler
Harriet B. Wakelee
Ida A. Young

Kindergarten Training Course:

Elizabeth Balch
Ella J. Beckley
Alice J. Blake
Ursula H. Brainerd
Florence L. Davis
Viola A. N. Doolittle
Amalie Feibel
Jennie M. Frazier
Lucy A. Hazen
Mary F. Hibbard
Susan M. Richard

RECOMMENDATIONS

Model Schools.— Additional accommodations are recommended for the Model Schools. At present it is necessary to use recitation rooms in the Normal School building for some of the grades.

These rooms were not designed for such use, and they are needed as recitation rooms for Normal classes.

Post-Graduate Course.— A Post-Graduate Course is also recommended as likely to meet the needs of those Normal School graduates who desire opportunities for further study and training, and college graduates who wish a professional training. Such a course might well be planned with the present facilities of the school, and might properly include work in psychology, history of education, methods of teaching, science, English, and history, besides observation and practice in Model Schools.

I wish to thank the New Britain School Board for its interest in the welfare of the Normal and Model Schools, and especial thanks are due the Superintendent of Schools for his cordial coöperation in every movement looking to their increased efficiency.

Respectfully submitted,
MARCUS WHITE.

Willimantic.— Mr. G. P. Phenix, principal of the school at Willimantic, reports as follows:

MR. C. D. HINE, *Secretary.*

Dear Sir: — My third annual report as principal of the State Normal-Training School at Willimantic is herewith respectfully submitted.

This report is for the year ending August 31, 1896 — the seventh year of the school.

REGISTRATION AND ATTENDANCE

Graduate Students (Drawing Department)	2
Seniors	31
Juniors (entered September, 1895)	48
Juniors (entered January, 1896)	6
Total	87
Pupils in Model Schools	526

Brooklyn	2	Montville	1	Stafford	5
Canterbury	1	New London	2	Stonington	3
Chaplin	3	North Stonington	2	Thompson	2
Columbia	3	Norwich	10	Tolland	2
Coventry	5	Old Lyme	1	Vernon	1
Griswold	1	Plainfield	4	Waterbury	2
Groton	1	Pomfret	2	Windham	20
Hampton	2	Preston	2		
Lebanon	1	Putnam	2		86
Ledyard	1	Scotland	1	Massachusetts	1
Mansfield	3	Sprague	1		
					87

This is the largest registration in the history of the school. The gain of eighteen over the previous year is to be accounted for in part by improved material conditions.

In former years the numbers were as large as could be comfortably accommodated in the narrow quarters which were occupied pending the completion of the new building.

TEACHERS

The list of teachers at the beginning of the year was as follows :

George P. Phenix, Principal
Psychology
Jennie E. Chapin
Mathematics; Writing; Gymnastics
Grace L. Bell
Model School VI
Emelene A. Dunn
Drawing
May A. Avery
Biology; Chemistry; Physics
Edith S. Norton
Model School VII
Anna A. Bubser
Model School I
Casper Isham
Model School VIII
Mary G. Henderson
Model School V
Delia E. St. John
Model School III

Mabel I. Jenkins
History; English; Geography
Blanche H. Boardman
Kindergarten
Caroline E. Meachem
Kindergarten
Martha B. Chapin
Kindergarten
Caroline Hendrickson
Model School — The Oaks
Harriette Wilson
Singing
E. Theresa Gaffney
Model School IV
Martha A. Jenks
Model School II
Sarah J. Walter
Model School I; Methods
Anna A. Kimber
Ungraded Schools

SCHOOLS FOR OBSERVATION AND PRACTICE

First District

Kindergarten	2 rooms
Grade I	2 rooms
Grades II–VIII	7 rooms

Second District (*Oaks*)

Grades I–IV	4 rooms

Third District

Ungraded School	1 room

Sixth District

School of two departments	2 rooms

Eleventh District

Ungraded School	1 room

During the summer of 1895, arrangements were made with the Third, Sixth, and Eleventh Districts of the town of Windham, whereby the schools in those districts should be used for training purposes. The addition of ungraded rural schools to those already used for observation and training, marked a new departure.

Many of the graduates of the Normal School begin their work as teachers in rural schools, and it was believed that training received in such schools would prove of great value. The outcome of the undertaking, though fortunate, has not been in all respects what was expected. While the teaching did not fall below the average for ungraded schools, it was impossible with one school two miles distant in one direction and the others three and one-half and five miles in the opposite direction, to give such close supervision as teachers-in-training need and have the right to expect.

The advantages of training in rural schools are decided, but they were, in a measure, neutralized on account of distance from the Normal School. The supervision of these schools was given to Miss Anna A. Kimber, who had, for a number of years, directed the training in one of the largest normal schools in Pennsylvania. After about four months of service Miss Kimber was called home, and resigned her position.

The school in the Third District was placed in charge of a paid teacher and Miss Grace L. Bell, who had been connected with the Model Schools ever since their establishment — with the exception of one year — was appointed to supervise the other schools. It now became possible to have every teacher-in-training visited for a considerable portion of each day. There was earnest effort on the part of the pupil-teachers; careful supervision; the number of pupils to each teacher was limited; and the supply of books and materials — which were furnished from the Normal School — was ample. It is believed that these country schools have been conducted with more than ordinary efficiency and that the training received in them has been of value.

TRANSPORTATION

In the spring of 1896 the question of transporting the children of the Third District to the First was agitated. The result was that, beginning April 7th, the school in the former district was closed, and the children have since been brought daily in a bus to the Model Schools, and returned to their former schoolhouse at night. The success of this experiment has been marked. The pupils have been assigned to proper grades; the attendance has been excellent, and the cost of transportion not large. In fact, the expense of maintaining a first-class school would exceed by considerable the cost of transportation.

A demonstration of the feasibility of transporting children has been made, which cannot fail to have an effect on every part of the town and upon neighboring towns.

The number of schoolrooms provided by the First District is no longer sufficient for the increasing school population. One of the buildings is inadequate and unhealthful for teachers and pupils. The schoolrooms are low-studded and poorly lighted, and there are no means of ventilation except through windows and doors. The air space per pupil is far below that recommended by conservative authorities where means of ventilation are provided. During the year conditions were greatly improved by the removal of two primary and one grammar grade to the Normal Building. The advantages arising from having these schools in the Normal Building are obvious. The presence of children and the consequent opportunity for more frequent observation of them, in and out of school, cannot fail to do for the Normal students what no formal instruction could effect.

It is desirable to have more schools in the Normal Building. It would be well if, when the north wing is erected, provision could be made for a number of schoolrooms. More room will soon be a necessity, and it is doubtful if accommodations could be more economically provided than by adding to the present Normal Building. The state and the town should be able to make some arrangement for this which should be of mutual advantage.

RECENT ADVANCES IN METHODS OF WORK

The most important advances during the year have been made in strengthening those lines of work which it should be the distinctive work of a Normal School to do.

The time given to actual work in the schools by those who are to be teachers has been twenty weeks, the same as last year, but the pupils have in nearly all cases received training in not more than two grades.

Those who have seemed especially adapted for primary or grammar work have received their entire training in that grade for which they seemed best fitted.

During the year a strong course has been given which, for want of a better term, must be called "Methods." The application of pedagogical principles to teaching has been studied by what might be called the laboratory method. Classes of children have been taught in the presence of the training classes, care being taken to have the teaching planned with particular reference to the development of the subjects. Discussion has followed the observation. In this manner the subjects of Reading and Number were studied. Twenty weeks were given to this work.

Such work is admirably adapted to elevating a teacher from the level of the mere imitator, but the present crowded state of the course of study makes more of it difficult. For much of the improvement in this department credit is due to Miss Sarah J. Walter, who brought to the school the results of a long and rich experience in one of the best known Normal schools in the country.

PREPARATION OF STUDENTS

It should be the distinctive province of the Normal School to consider subjects from the standpoint of the best teaching and to afford opportunity for practice in teaching.

It is no exaggeration to say that there is not a secondary school in the state which gives the average student that acquaintance with botany, zoölogy, physiology, physics, chemistry, drawing, music, geometry, and history, that will serve as a basis for consideration of best ways of teaching even so much of these subjects as may be taught in the common schools. This is not to be considered as condemnation of the teachers of secondary schools or their methods, so much as evidence that attention in these schools is turned in other directions. One year, at least, of the Normal School course should be devoted to what may be called professional work. By this term is included psychology, school management, all work relating especially to methods of instruction in common school subjects, making out programs, discussion of educational values, school law, etc.

One year is all too short for the accomplishment of what ought to be done in this line. Where less time is given, pupils are obliged to go out without the preparation that might and should be given.

It is clearly impossible to present the necessary subject matter in one year, and if teachers are to be properly trained the course must either be lengthened or pupils must enter with better preparation than is now given in most high schools.

ADMISSION TO ADVANCED STANDING

It is believed that were the requirements of the Normal School sufficiently understood many pupils might prepare some subjects, as arithmetic, history, geography, etc., so as to pass from these subjects in the Normal School on examination. It is only just to give to pupils credit on all subjects with which they are able to show, upon thorough examination, sufficient acquaintance. Unless some such plan as this can be adopted the necessity of lengthening the course for all students will be imperative.

CHANGE OF TEACHERS.

The school has suffered from a frequent change of teachers. Between September, 1893, and September, 1896, twenty-three teachers resigned. Of these, three married, six left to study, four to occupy more lucrative positions elsewhere.

Such changes cannot fail to weaken a school. A beginning has to be made each year, and though the teachers have been earnest and enthusiastic to a marked degree, the growth of the school has not been so continuous as it would have been had the teachers remained for longer periods.

During the summer months just passed, five teachers received calls to other states at tempting salaries. Teachers who have been in the service of the school and understand local conditions, who by faithful work have made their services of great value should, if possible, be retained. They should be worth more to this school than to any other and their worth should be recognized. What might seem at first to be an over-generous policy would prove, in the end, to be based upon wise self interest. The success of the school and its influence as an educational factor in the state depends so largely upon the personnel of the teaching force that every effort should be made to keep it in the highest possible state of efficiency.

At the close of the year, Mr. Isham, Miss Norton, Miss Henderson, Miss St. John, Miss Hendrickson, Miss Boardman, and Miss Bubser severed their connection with the school. Miss Henderson and Miss St. John resigned to take the special drawing course in the Normal school. Miss Julia W. Swift was engaged for Grade I ; Miss Marion H. Carter for IV ; Miss Lucy Chandler for VI ; Miss Jennie E. Dennehy, VII, and Albert Boardman for VIII. Mrs. E. G. Graves of Louisville, Ky., was secured as principal of the Kindergarten department.

DORMITORY

As the attendance at the school increases it becomes increasingly difficult to obtain desirable boarding places for the students. I would recommend to the board for their consideration the advisability of erecting a dormitory for the accommodation of a portion of the students. It should be possible to furnish board and rooms at moderate prices and still make the boarding department self-supporting.

GRADUATES

On Friday, June 19th, the following persons received diplomas :

Alice M. Alford, Willimantic
Grace Arnold, Putnam
Egbert A. Bass, Coventry
Katherine L. Browne, Willimantic
Bertha Carpenter, Moosup
Alice M. Fuller, Hampton
Grace L. Hanna, Montville
Lizzie T. Hayes, Norwich
Rosa J. Ives, Lyme
Myrtice Kingsbury, Thompson
Alice E. Mason, Mansfield
Mary L. Murray, Willimantic
Frances T. O'Neill, Willimantic
Frank E. Perkins, South Coventry
Clara Edna Remington, Mansfield
Louis H. Stanley, Brooklyn
Anna C. Sugrue, Willimantic
Bridget A. Sullivan, Willimantic
Cecilia M. Sullivan, Norwich
Coral E. Tracey, Willimantic
Rose L. Turner, Norwich
Elizabeth L. Wheeler, New London
Wells S. Wilcox, Willimantic
Mary A. Williams, Willimantic

KINDERGARTEN TRAINING CLASS.

Jessie M. Dimock, Willimantic	Katie Keeney, North Coventry.

GENERAL OUTLOOK

Attention was called in my first report to the peculiar conditions surrounding the Willimantic Normal School. This situation has not materially changed. There seems to be a growing sentiment in the towns in favor of employing trained teachers.

Only as this sentiment increases and results in encouraging the best young men and women in these towns to prepare themselves for teaching, will the Normal School be able to do its proper work.

From the last three classes that have entered the school, pupils have dropped out from time to time and for various reasons. It is suggestive that of twenty-two who have left the school without completing the course and have at once engaged in teaching, eleven were either advised to leave because of deficient scholarship or by voluntary withdrawal made such advice unnecessary.

These persons usually, but not always, find positions in small country schools where the pay is too small to attract competent teachers. Schools suffer because these teachers are not only untrained, but they are not even educated. It is hoped that in the not very distant future, legislation will make a minimum of attainment necessary to all who wish to engage in teaching. If every person beginning to teach in this state were obliged to hold a state certificate, it would then be possible to protect our schools from teachers who are barely beyond the charge of illiteracy.

Respectfully,

GEORGE P. PHENIX.

New Haven.— Mr. A. B. Morrill, principal of the school at New Haven, reports as follows :

MR. C. D. HINE,

Secretary of State Board of Education.

Sir:— The report of the State Normal-Training School at New Haven, for the year ending June 19, 1896, is hereby respectfully submitted.

The school began its third year Tuesday, September 3, 1895, in the Skinner School building on State Street. The pupils in attendance during the year were as follows : —

Seniors	75
Juniors	124
Total	199

The following new teachers began work in the model schools :—

Miss S. Lillian Brooks
" Martha A. Quinlan
Miss Ida Bright
" Edith W. Todd

Mr. Edward B. Birge, of Easthampton, Mass., was engaged to take charge of the music in the school, giving two days a week to that subject in both the normal and the model school departments. Miss Edith W. Todd was called early in the year to take charge of the Training School in Worcester, Mass., and Miss Emily Coxeter resigned on account of sickness. Misses Sarah H. Fahey and Julia H. Doyle were engaged to take their places, respectively.

The New Haven Board of Education granted the use of Dwight School, as a model school, and work was begun in that school at the opening of the school year. Most of the teachers in the school were retained.

In other respects, the list of teachers in all departments was unchanged, and is given in the annual catalogue.

The important event of the year was the removal of the school from temporary quarters on State St. to the new building on Howe St. The moving was mostly done on Saturday, May 9, 1896, so that the usual session of the school was held in the new building Monday, May 11, without any interruption in the work. The building was ready for occupancy at this time and has proved well adapted to the needs of the school.

A class of sixty-six members graduated June 18, 1896. This was the second class to graduate from the school, and makes the whole number of graduates one hundred and eighteen. These graduates, with one or two exceptions, are teaching. The graduating class numbered, when it entered the school, one hundred and thirty-three. The decrease in its number during the course was due largely to inability of the pupils to keep up to the standard of scholarship prescribed for the school. It is a perplexing matter to determine how long pupils, weak in scholarship, shall be allowed to remain in the school on trial. Such pupils require disproportionate attention compared with the others, and thus detract much from the teaching force.

The following facts are stated in regard to the class that entered the school in September, 1895:

Entrance—					
Examinations					40
H. S. Diploma					74
Teaching					10
Education —					
Common School					26
High School	1 yr.	2 yrs.	3 yrs.	4 yrs.	
	6	13	7	64	90
Private School					8

Respectfully submitted,
A. B. Morrill.

SCHOOLS AT COUNTY HOMES

The following table gives enumeration, registration, and attendance in the County Homes of Hartford, New London, Fairfield, and Middlesex counties :

TABLE XLIII

County	Location	Enumerated October, 1895	No. diff. children reg. 1895–6	No. children remaining through the year	Av. attendance 1895–6	Name of teachers
Hartford	Warehouse Point	63	108	39	64.6	Edna T. Pitkin Eva M. McLean Harriet E. Price
New London	Preston . .	46	68	19	32.6	Jennie L. Harris
Fairfield	Norwalk . .	62	131	32	58.0	Saidee A. Parsells Helen A. Bell
Middlesex	Haddam . .	41	62	26	37.6	Elsie Dickenson

The report of Mr. Giles Potter, visitor of the schools in Fairfield and Middlesex counties, is herewith given :

TO MR. CHARLES D. HINE, *Secretary.*

Sir : — As visitor to the schools in the Temporary Homes in Fairfield and Middlesex counties, for the year ending July, 1896, I submit the following report :

Each of these schools was visited every month while they were in session. At the last visit in each term about half a day was spent in each room, and efforts were made to ascertain something of the progress the children had made and their attainments.

The Fairfield County School.

This school is kept in a two-story brick building erected for the purpose about ten feet from the main building and connected therewith by a covered passageway at the second story. It contains two rooms, each 36 by 24 feet, and 12 feet in height. The rooms are well finished and lighted by windows on three sides, unobstructed on the outside and shaded with curtains. They are warmed by direct steam, ventilated by a shaft near a chimney, having registers near the floor and near the ceiling.

The room on the first floor occupied by the primary department is furnished with 32 modern single desks with folding seats, the size being suitable for children from four to eight years of age, also two kindergarten tables and 24 small chairs and a good teacher's desk. There are good blackboards on all sides of the room. There are provided reading charts, and primers and first readers for those children who can use them, and kindergarten material.

The room on the second floor occupied by the more advanced children is furnished with 42 modern single desks with folding seats, and teacher's desk. There are good blackboards on all sides of the room, and maps and a globe.

In all respects the rooms and furniture are excellent. The building was finished during the preceding summer and occupied for the first time in the fall term.

The attendance in these schools is affected quite differently from that in other schools. There is no irregularity on account of whims, caprice, or demands of parents, or on account of colds and trifling ailments, caused by imprudent exposure and unwholesome food. Had it not been for the breaking out of the measles in this Home during the summer term, the attendance so far as affected by these ordinary causes would have been nearly perfect. But these Homes are, as described by the name, *temporary*. Children are constantly withdrawn, being "placed out in families," and others are received. There were registered in this school at the beginning of the fall term 65 children. Enumerated on the first Monday in October for the state school money 62. Of this number 32 only remained in the Home during the year. An equal number of those who had entered were present, so that there was the same number in the school at the end of the year as there was at the beginning. But these numbers fail to show all the changes, as many of those who entered the Home after the beginning of the fall term were withdrawn before the end of the summer term.

The school registers show the following :

Registered : Fall, 97 ; winter, 82 ; summer, 72 ; over 16 years, 0 ; different scholars registered in the year, 131. Average attendance : Fall, 61.9 ; winter, 55.5 ; summer, 58.1. Length of terms in days : Fall, 80 ; winter, 79 ; spring, 72.

The ages of the children were from four to thirteen years. The average age of those registered during the fall term was nine years. The average was about the same during the other terms.

Considering the parentage of these children and their environment before they were placed in the Home, it cannot be expected that they will show the proficiency in learning which other children of the same ages ordinarily show. Besides this disadvantage the brightest children are soonest taken into families, leaving the dull and backward ones in the Home and in the school. Ten of the children taken from the school during the fall term were one entire class, the most advanced in all the studies.

Notwithstanding these changes and other adverse conditions the school in both departments made good improvement during the year in all the studies, A class in arithmetic had become familiar with all the usual operations in common and decimal fractions, while all who had been in the school one term or more showed proficiency in number work according to their years. Reading was well taught, beginning both with words and sounds of the letters. Geography was taught orally, as was also language. Physiology was taught orally and from a text-book.

The order of the school was excellent, the children were respectful and obedient.

The teacher of the more advanced department had had considerable experience, having taught in this school the three previous years. The other teacher had had no previous experience, having graduated the preceding year at the South Norwalk High School. In methods of giving instruction and in management of her school she improved during the year. Both teachers were faithful and their efforts were very successful.

The expenses of this school for 41 weeks were $750.00. The Commissioners state that there was no expense during the year for building, repairs, or library, these having been previously provided. The schoolrooms were warmed with steam from the main boiler. Incidentals were not reported.

There was received from the town of Norwalk money drawn from the state on account of 62 children enumerated in the Home $139.50. The balance of the cost of the school was paid by the county.

This Home is in a good two-story brick building situated in a large lot on high ground. The building is new, spacious, and well adapted to its use, having large and well-ventilated dormitories, work and bath-rooms, dining-room and play-room. It is warmed throughout by steam. The sanitary conditions seem to be excellent. The entire establishment is in first-class order. The children are kept clean, are comfortably clothed, and show excellent care in every respect. They attend church on Sundays and have proper religious instruction.

While the building of the Home is quite large it does not accommodate all the children who are sent there. During the year an average number of about twenty have been boarded elsewhere. These are the youngest children, too young to attend school.

The Middlesex County School.

This school is kept in the first story of an addition to the main building of the Home. The schoolroom is 23 feet by 19 feet; height of walls 10 feet. It is well finished with pine ceiling and lighted with windows on three sides, and warmed by direct steam, pipes passing round the room. There are no provisions for ventilation except the door and windows which open from bottom and top. The room is furnished with 30 modern single desks and chairs, and a good desk for the teacher, all in good order. There are good blackboards on three sides, maps, charts, and a clock are also provided.

Owing to sickness in the Home the school was not commenced till October 1st. October 17th a child was taken sick with diphtheria and died. This caused a further suspension of the school for four weeks, till November 19th. The term closed December 20th, having been in session forty days. The winter term began December 30th and continued to April 11th. The spring term was from April 13th to June 26th.

The school register shows as follows :

Length of fall term	8 weeks	40 days
Length of winter term	15 weeks	75 days
Length of spring term	11 weeks	55 days
Total	34 weeks or	170 days

Number of scholars registered in fall term	40
Number of scholars registered in winter term	45
Number of scholars registered in spring term	48
Different scholars registered in the year	62
Average attendance fall term	37.2
Average attendance winter term	36.7
Average attendance spring term	39.2

On account of the sickness in the Home the number of children placed out and received was much less than otherwise there would have been, especially during the fall term ; so that the attendance in the school was not nearly as much affected in this way as schools of this kind usually are. While the number enumerated in the Home on the first Monday in October was 41, of this number 26 remained during the year.

It is obvious that a schoolroom of the size of this one is not sufficient for forty children, and if not the direct cause of their sickness, is not conducive to their health and mental activity.

The children generally seemed to be deficient in ability to understand and to retain knowledge.

But during the previous year the school in the Home was interrupted by sickness and was not in session at all after the usual winter term, and as the children had been neglected before, it cannot be expected that they would show much proficiency. During the past year their progress was not satisfactory, owing to a number of causes, some of which have already been mentioned.

It is said here, as in the other Temporary Homes, the brightest children are selected by those who take children into their families so that those remaining are intellectually below the average of those committed. These ages were from four to fourteen years.

The teacher had had no special preparation for teaching and but little experience, having taught only in this school during the previous year. The order of the school was good, and the children were respectful and obedient. There were too many classes and too many children for one teacher, whatever might have been her qualifications and experience.

The expenses of this school for 34 weeks were for teacher's wages, $175.00; fuel and incidentals, $25.00; books and charts, $25.00; total, $225.00.

There was received from the town of Haddam money drawn from the state on account of 40 children enumerated in the Home, $90.00. The balance of the cost of the school was paid by the county.

This Home is well located in a large dry lot. The building is of wood, two stories, erected for and well adapted to its present use. It is warmed throughout by steam. The dormitories are ample and well ventilated. The other rooms, including dining-room, play-room, and room for the sick, are large and convenient. The house is in good order and well kept in every respect. The sanitary conditions seem to be excellent. There is no apparent local cause for the sickness which has prevailed here. The diphtheria and the fever, it is thought, were brought by some of the children.

GILES POTTER.

NEW HAVEN, October 1, 1896.

Below will be found the report of Mr. S. P. Willard, visitor of the schools of Hartford and New London counties:

MR. CHARLES D. HINE,

Secretary State Board of Education.

Sir: — The Temporary Home schools assigned to me to visit were those in Hartford and New London counties.

The Hartford County school is located at Warehouse Point, in the town of East Windsor. Two schoolrooms were used, one in the main building and one in the barn. The latter was poorly lighted; both were badly ventilated and totally unfit for the purposes for which they were used. Through the efforts of the County Commissioners, the representatives of the county voted to put up a building for school purposes, and during the summer a one-story brick building was completed. It has two large, well-lighted and ventilated schoolrooms that can be made one by means of sliding doors. The rooms are fitted with new furniture, and are well adapted for school purposes.

The New London County Home is located in the town of Preston, opposite Greeneville. The schoolroom is on the first floor of an addition to the main building. It is large, well-lighted, and neatly furnished. The only ventilation is by means of the windows.

These schools have certain conditions to contend with that retard their progress and call for the best and strongest teaching.

The attendance of the individual child is regular while that child is an inmate of the Home, but the children are continually coming and going. During the past year, in the school at the Hartford County Home, 108 different children were registered, but only 39 of these were there during the entire school year. At the New London County Home there were 68 different children registered, only 19 of whom were there from one end of the school year to the other.

Few of the children sent to the Homes are over ten years old, and, previous to entering the Home, their education has been sadly neglected. In the school they must be placed in classes already formed. They bring no enthusiasm, nor love for school work, but their presence in the class retards its progress. To accomplish much, under such conditions, the teacher must have unusual force, be capable of inspiring enthusiasm, and with tact in management.

At both of the Homes it would be advantageous to open another room that might be called a "Kindergarten." This would provide for some of the children at present in the nursery, and would also take the youngest of those in the school. This would allow the teacher to give more time to work with the older ones.

S. P. WILLARD.

PRIVATE SCHOOLS

The following table is compiled from the returns of private schools:

TABLE XLIV

TOWNS	NAMES OF SCHOOLS	Number of different scholars registered	Number over 16 years of age	Average attendance for the year	Length of school in days	Number of teachers	Number of grades
HARTFORD COUNTY							
Hartford	* St. Joseph's School	800	3	603	191	14	9
	* St. Peter's School	956	...	719	190	16	7
	* St. Patrick's School	725	...	668	188	12	9
	Huntsinger's Business & Shorthand College	429	422	...	220	8	...
	Hartford Business College	456	344	...	292	9	...
	Collins St. Classical School	35	20	30	175	5	5
	Woodside Seminary	22	19	19	163	9	...
East Hartford	Mrs. L. R. Harrison's School	28	...	19	190	1	...
Enfield	* St. Joseph's School	423	1	379	199	8	10
	Shaker School	13	...	13	180	2	...
Glastonbury	Free Academy	71	11	54	184	2	4
New Britain	* St. Mary's School	1,270	...	1,076	193	21	...
	New Britain Business College	16	16	10	254	2	...
Simsbury	McLean Seminary	31	18	27	180	6	6
Suffield	Connecticut Literary Institute	107	69	86	185	9	5
Windsor	Young Ladies' Institute	49	23	45	180	10	...
Windsor Locks	* St. Mary's School	62	19	274	195	6	12
Totals	17 Schools	5,793	965	4,022	...	140	...
NEW HAVEN COUNTY							
New Haven	* St. John's Parochial School	386	...	352	197	10	12
	* Sacred Heart Parochial School	881	7	734	200	12	8
	* St. Francis' Parochial School	834	1	762	199	12	8
	Hopkins Grammar School	89	...	65	165	...	...
	Yale Business College	103	87	...	...	5	...
	Hogarth Institute	53	52	19	233	8	...
	Miss Orton's and Miss Nichols' Day School for Girls	40	28	30	175	6	5
	The Misses Catlin's School	96	...	70	185	4	6
	Miss Lena H. Nichols' School	52	1	35	180	3	4
	Mrs. Cady's School for Girls	94	50	70	252	10	4
	School for Girls & Boys, 33 Wall st	39	...	...	...	5	...
	Miss Alma Leighton's School	30	...	...	170	3	4
	Mary S. Johnston's School	18	8	13	180	3	...
	Mary C. Livermore's School	50	...	32	193	...	...
	* Trinity Parish School	21	...	14	196	2	...
	Childs' Business College	98	97	...	...	4	...
	New Grammar School	51	22	32	200	...	...
	Charlotte A. Willard's School	26	2	23	168	3	...
Ansonia	* Sacred Heart School	88	2	64	199	3	...
	Alice E. Hoadley's School	35	...	17	193	2	4
Cheshire	* Episcopal Academy	32	16	32	222	5	5
Derby	Pope's Shorthand School	30	30	25	260	1	3
	* St. Mary's Parochial School	408	2	299	207	8	7
Hamden	Mill Rock School	18	4	12	180	1	...
Meriden	* St. John's German-English School	203	...	160	206	3	7
	Misses Pink's School	37	...	21	176	2	...
	* St. Rose's Parochial School	817	1	645	203	16	8
	German-American School	91	...	77	200	2	8
	* St. Laurent's School	340	3	290	202	9	9
	* St. Mary's German-Catholic School	170	...	136	180	2	...
Milford	Miss L. Simpson's School	12	...	10	180	1	...
Naugatuck	Hillside Avenue School	26	...	21	191	1	...
Orange	Miss S. C. Hall's School	14	...	12	190	1	...
Southbury	South Britain Select School	19	3	14	180	1	...
Waterbury	Home School	39	6	31	180	2	...
	* St. Margaret's School	162	80	154	164	14	14
	Miss Daisy White's School	16	...	7	188	1	...
	Miss Lila Chandler's School	20	20	16	175	1	...
	Harrington's Business College	80	80	60	220	4	...

* Ecclesiastical.

TABLE XLIV — *Continued*

TOWNS	NAMES OF SCHOOLS	Number of different scholars registered	Number over 16 years of age	Average attendance for the year	Length of school in days	Number of teachers	Number of grades
NEW HAVEN COUNTY — *Continued.*							
Waterbury............	*Academy of Notre Dame.......	185	38	154	195	12	12
	* St. Mary's School..............	740	...	667	197	14	...
	* St. Ann's School.......	415	...	336	200	6	...
	Miss Mary Smith's School........	15	...	0	195	1	...
	Gerard School....................	59	1	48	166	2	...
Totals............	44 Schools.........................	7,032	641	5,569	...	205	...
NEW LONDON COUNTY							
New London..........	Williams' Memorial Institute....	189	111	167	185	7	4
	* St. Mary's Parochial School....	345	1	292	187	6	...
	Miss Allender's School...........	15	...	10	...	1	1
	Maria L. Peabody's School	19	6	13	191	1	...
	The Bulkeley School.............	90	60	76	200	...	...
	Adelaide R. da Silva's School....	11	...	9	150	2	...
Norwich	Free Academy	272	189	256	190	18	...
	Norwich Business College........	65	35	40	250	3	...
	* St. Patrick's Parochial School..	625	4	549	195	12	9
	* Taftville Parochial School......	353	...	315	174	6	...
	Miss C. E. Blackman's School....	14	...	12	185	3	...
Colchester	Bacon Academy..................	55	29	47	200	2	4
	Day High School.................	11	8	9	80	1	...
North Stonington.....	The Edgar Wheeler School......	17	6	14	180	1	3
Old Lyme.............	"Boxwood"......................	24	19	23	160	12	...
	Black Hall School................	42	16	38	175	6	6
Sprague...............	* St. Joseph's School............	104	1	94	200	2	...
Stonington............	* St. Michael's School...........	273	2	221	196	4	8
	Mystic Valley English & Classical Institute..................	40	16	30	200	6	4
Totals............	19 Schools.........................	2,564	503	2,215	...	93	...
FAIRFIELD COUNTY							
Bridgeport...........	* St. Augustine's School..........	630	2	541	196	11	9
	* St. Joseph's Academy..........	281	...	232	182	5	...
	Park City Practical Business College.......................	56	36	50	195	4	8
	Martin's Business College........	75	75	40	300	3	...
	Golden Hill Seminary............	35	15	...	175	6	...
	Union Business College..........	170	170	50	...	5	3
	The Froebel Kindergarten.......	48	...	30	187	2	...
	The Courtland School............	78	25	60	172	9	11
	Myrtle Ave. Private School......	17	...	...	100	2	...
	University School................	87	23	80	185	8	10
Danbury..............	* St. Peter's Parochial School....	918	5	741	199	13	8
	Fannie I. Foote's School.........	15	1	9	199	1	...
	* German Lutheran School	136	...	92	200	3	2
	Olivia C. Steven's School........	23	...	10	191	1	...
	Helen A. Washburn's School....	31	...	20	202	1	...
Brookfield	Curtis School for Boys...........	21	...	20	180	6	...
Darien	Darien Select School.............	12	...	9	200	3	...
Easton	Easton Academy.................	22	5	14	195	1	...
Fairfield	Miss Augusta Smith's School....	24	4	20	170	3	3
	Fairfield Academy...............	39	6	29	170	5	10
Greenwich	* St. Mary's School..............	192	1	131	193	3	...
	Greenwich Academy............	50	8	45	187	7	6
New Canaan	The Maplewood School	32	1	25	190	3	...
	New Canaan Institute...........	30	7	28	...	2	...
Newtown	Newtown Academy..............	86	17	61	180	7	...
Norwalk	* St. Mary's Parochial School....	504	...	341	195	8	16
	Miss Steven's School............	5	5	4	175	1	...
	Mrs. M. E. Mead's School........	40	16	36	241	9	4

* Ecclesiastical.

TABLE XLIV — *Continued*

TOWNS	NAMES OF SCHOOLS	Number of different scholars registered	Number over 16 years of age	Average attendance for the year	Length of school in days	Number of teachers	Number of grades
FAIRFIELD COUNTY — *Continued.*							
Norwalk	Norwalk Military Institute	50	30	...	175	5	...
	Miss Baird's Institute	...	...	...	...	12	3
	Norwalk Preparatory School	9	3	9	160	2	...
Redding	Hill Academy	22	5	16	177	1	...
Stamford	Miss Low's School	68	21	55	152	12	10
	Betts' Academy	28	20	24	175	4	...
	Miss Aiken's School	58	30	...	155	13	8
	Miss Carrie A. Hoyt's School	25	...	18	175	2	...
	Merrill's Business College	108	...	75	286	8	6
	School for Boys	66	20	64	180	6	...
	Miss Haff's School	12	...	10	170	1	1
	The Misses Warren's Private School	20	...	20	175	4	...
	* St. John's School	435	...	299	195	8	...
	Anna J. Webb's School	6	...	...	...	1	...
Stratford	Private School & Kindergarten	40	...	30	191	2	4
Westport	Staples' High School	110	12	84	195	4	...
Wilton	Lambert Academy	7	...	4	220	1	1
	Wilton Educational Institute	0	13	35	365	3	4
	Wilton Academy	15	10	13	200	1	...
	Hoffman's Academy	49	23	28	230	2	7
Totals	48 Schools	4,805	609	3,502	...	224	...
WINDHAM COUNTY							
Killingly	* St. James' Parochial School	363	2	234	193	6	4
Putnam	* St. Mary's Parochial School	625	2	495	194	9	9
Thompson	* St. Joseph's School	511	...	397	196	8	...
	* Swedish Lutheran School	84	...	74	60	2	2
Windham	* St. Joseph's Parochial School	918	3	628	205	18	...
Woodstock	Woodstock Academy	63	35	52	195	4	3
Totals	6 Schools	2,564	42	1,880	...	47	...
LITCHFIELD COUNTY							
Canaan	The David M. Hunt School	32	8	30	200	2	...
Colebrook	P. Bowman's School	4	...	3	65	1	1
Cornwall	Housatonic Valley Institute	16	1	12	165	3	5
Goshen	Eagle Hall Academy	15	8	...	124	1	...
Kent	Katherine M. Hopson's School	23	6	15	180	2	...
New Hartford	* St. Mary's Parochial School	262	...	156	195	5	...
New Milford	Mary C. Wells's School	32	...	16	191	1	...
	The Rectory School	32	11	30	245	4	...
Norfolk	The Robbins' School	35	18	25	170	5	...
North Canaan	Canaan Academy	10	5	7	180	2	...
Roxbury	Booth Free School	23	11	13	129	1	1
Salisbury	The Hotchkiss School	105	80	103	216	8	...
	* St. Mary's School	96	...	62	200	2	...
	Nellie M. Small's School	16	...	9	197	2	...
Torrington	* St. Francis' Parochial School	618	...	433	198	10	...
Washington	The Gunnery	56	26	49	176	6	...
	Upson Seminary	16	8	10	252	1	...
Watertown	The Taft School	45	24	43	170	7	5
Winchester	* St. Anthony's School	315	...	258	200	6	9
	Gilbert Home	213	3	118	197	4	...
Woodbury	Parker Academy	58	26	34	187	2	...
Totals	21 Schools	2,022	235	1,426	...	75	...
MIDDLESEX COUNTY							
Middletown	* St. John's School	533	2	373	190	8	9
	Mrs. R. B. Rockwell's School	13	3	11	200	3	4
	Middletown Business College	54	48	28	254	2	...

* Ecclesiastical.

TABLE XLIV — *Concluded*

TOWNS	NAMES OF SCHOOLS	Number of different scholars registered	Number over 16 years of age	Average attendance for the year	Length of school in days	Number of teachers	Number of grades
MIDDLESEX COUNTY — *Continued.*							
Middletown	Miss Alice F. Jackson's School	8	...	8	185	2	2
	Myrtle Terrace School for Girls	9	...	8	180	2	...
	The Misses Patten's School	61	15	46	180	...	...
Clinton	Morgan School	281	49	233	183	13	12
Portland	* St. Mary's School	198	3	150	191	5	...
Old Saybrook	Miss F. C. Shepard's School	14	4	14	185	1	5
Totals	9 Schools	1,171	124	871	...	36	...
TOLLAND COUNTY							
Stafford	* St. Edward's School	214	...	166	188	4	8
Vernon	* St. Bernard's School	329	...	269	184	6	9
	* Evangelical Lutheran Trinity School	83	...	64	226	2	...
Totals	3 Schools	626	...	499	...	12	...

* Ecclesiastical.

SUMMARY

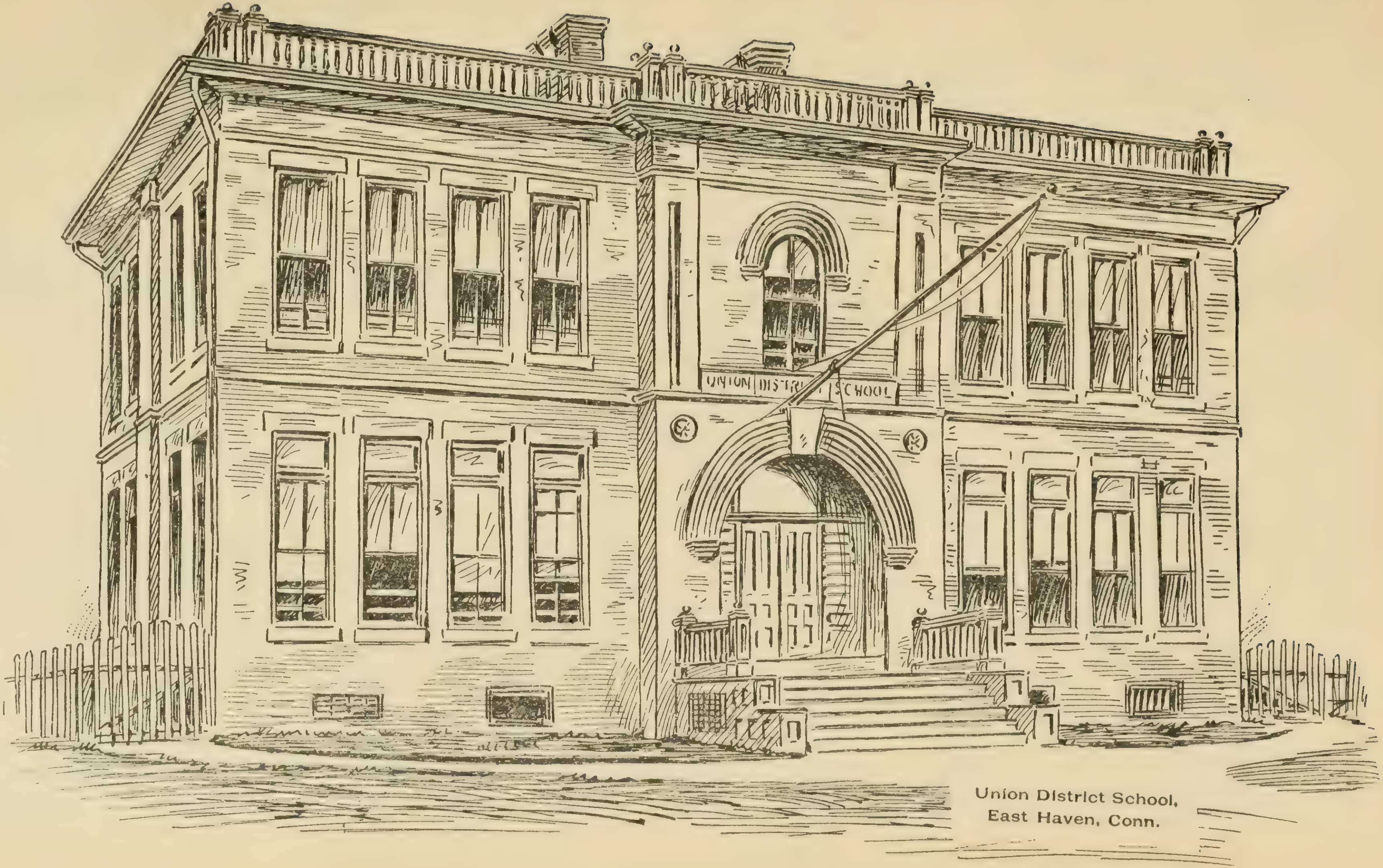
COUNTIES	Number of Schools	Number of different scholars registered	Number over 16 years of age	Average attendance for the year	Number of teachers
Hartford	17	5,793	965	4,022	140
New Haven	44	7,032	641	5,569	205
New London	19	2,564	503	2,215	93
Fairfield	48	4,805	609	3,502	224
Windham	6	2,564	42	1,880	47
Litchfield	2	2,022	235	1,426	75
Middlesex	9	1,171	124	871	36
Tolland	3	626	.....	499	12
The State	167	26,577	3,119	19,984	832

ARBOR DAY

The following proclamation was issued in April, 1896:

Arbor Day.— In pursuance of the appropriate and important obligation imposed upon me by law, I hereby designate Friday, April 17th, as Arbor day. I earnestly urge all school authorities and teachers, and all others for whom it may be reasonably convenient, to give much more than usual attention to the exceedingly desirable work which it is the design of the law to encourage.

O. VINCENT COFFIN.



Union District School,
East Haven, Conn.

SCHOOLHOUSES AND LIBRARIES

Summary of Statistics, 1895–6

Number of new schoolhouses built during the year	12
Number of schoolhouses in the state	1,633
Number of schoolhouses reported in poor condition	161
Increase for the year	22
Number of schools having libraries	663
Number of books in school libraries	128,860
Number of districts drawing state money during the year	400
Total amount of library money paid to districts in the fiscal year ending Sept. 30, 1896	$7,090.00
Number of public libraries	139
Number of sittings in public schools	147,984

SCHOOL LIBRARIES

The following table shows the number of districts drawing, the amount of the annual state grants, and the amount expended by the districts :

TABLE XLV

Year	No. Districts Drawing	Amount Received from State Treasury	Amount Expended
1866	94	$590.00	$635.00
....	..	......	1,242.12
1867	..	515.00	1,580.71
1868	80	865.00	2,802.93
1869	117	1,730.00	3,898.87
1870	128	1,960.00	5,226.64
1871	139	2,385.00	8,065.20
1872	161	2,345.00	7,458.97
1873	204	2,955.00	7,945.80
1874	183	3,340.00	8,095.73
1875	169	2,450.00	7,668.82
1876	154	2,900.00	8,262.15
1877	132	2,270.00	7,448.72
1878	178	2,975.00	9,543.96
1879	167	3,190.00	7,643.14
1880	195	3,040.00	7,412.54
1881	221	3,005.00	9,446.50
1882	221	4,255.00	9,476.98
1883	188	3,470.00	12,552.57
1884	165	3,090.00	14,968.52
1885	195	3,025.00	13,672.72
1886	185	3,300.00	11,535.05
1887	203	3,525.00	11,061.74
1888	287	5,000.00	13,192.42
1889	242	3,835.00	11,333.72
1890	312	5,890.00	15,331.20
1891	267	4,405.00	16,443.14
1892	294	4,485.00	15,121.33
1893	295	4,960.00	15,426.86
1894	392	6,505.00	15,180.65
1895	383	6,185.00	18,824.55
1896	349	5,820.00	20,402.28
1897	400	7,090.00	22,342.82

The number of books in school libraries reported in the years 1885 to 1897 is as follows :

1885	28,035	1892	66,903
1886	....	1893	75,641
1887	43,873	1894	82,128
1888	47,907	1895	101,875
1889	56,819	1896	108,319
1890	57,786	1897	128,860
1891	61,446		

The number of school libraries reported in the years 1884–1897 is as follows :

1884	240	1891	364
1885	219	1892	383
1886	262	1893	398
1887	290	1894	461
1888	322	1895	484
1889	377	1896	564
1890	380	1897	663

The object of these libraries is to aid in school work,— to assist in the education of the children.

Selection of Books. The books should be selected with primary reference to the subjects taught and the ability of the children to use them.

(*a*) *Books of Reference.* Only such books of reference as children can under direction consult with profit should be found on the shelves. Young children cannot use large cyclopedias written for erudite scholars. A large dictionary can be consulted only after some training and experience. In these libraries utility should justify every purchase.

Children should be taught how to use these and all books to which they resort for information. They will learn for themselves if they are interested ; especially can they be guided by the table of contents and the index if once they learn their value.

Reference books should be so multiplied that all can use them freely. A single dictionary for a large school means waiting, loss of time, and finally neglect.

(*b*) *Collateral Reading.* Interesting and instructive books on every school subject should be obtained. Forming and fixing the habit of reading are legitimate school ends and therefore books for the young children may be bought. When a purchase is to be made, the teacher's list ought to be first considered. The teacher cannot use the books unless their contents are familar. It follows that every book should be a part of the teacher's equipment.

When the books are in the library and ready for use, reference should be made to them by the teacher; quotations will help the instruction. Number of page and even paragraphs facilitate the scholar's work at first. Other books can be recommended and the results of reading will brighten the daily recitation and stimulate to further reading. Above all, when a book is found to be at once interesting and useful, it should be multiplied so that all can learn from it and go on their way full of delight and with increase of knowledge. Those good books which inspire us with an eager desire to know more, with an ardent and noble curiosity, are a great boon in every part and period of life, but doubly great in education.

New Books. The school library must be annually enlarged and refreshed with new books or it will be neglected. A few venerable books never used and covered with dust convey the idea to impressible children that the function of books is to be looked at and never opened.

Preservation. The collections ought to be preserved for each succeeding class and generation of children. This should depend not upon the occasional and spasmodic interest of a school officer or teacher, but upon organization, records, and invariable employment of a teacher who knows the use of books. The tendency with changing officers and teachers is neglect and the loss of the additions of each year.

The law permits the school visitors to assume control and care. These officers have a continuous official life and can compel records and the preservation of the books.

Records. An accession book in which every book should be entered will show the annual additions; with this book in hand at the beginning, the teacher can be made responsible.

In most cases it is the part of wisdom to make the public library the depository of the school library books,— thus securing interested and constant care. With proper relations established between the school and the public library, the teacher can have books for illustration and study and the children a wider range for all collateral reading.

In the report for 1895 is given a list of books suggested for small libraries.

The number of school libraries is increasing and they ought, if continued at all, to be made permanent and strong and kept to a high and useful standard. To enable the teacher to better instruct the children,— to better gain the benefits of instruction are their only justification.

Public Libraries

The State Board of Education appointed as members of the Connecticut Public Library Committee the following:

Caroline M. Hewins, Hartford
Storrs O. Seymour, Litchfield
N. L. Bishop, Norwich
Charles E. Graves, New Haven
Charles D. Hine, Hartford

The tables No. xlvi, pp. 100–109, No. xlvii, pp. 110–119, and No. xlviii, pp. 120–127 give information concerning libraries for the library year 1895–6.

These statistics have been collected and compiled from the reports of librarians by Miss Alice S. McQuaid.

For fuller information concerning libraries, reference may be had to the report of the Connecticut Public Library Committee.

TABLE XLVI—REPORT

Libraries marked * have become free during year 1896 and

	Town	Name of Library	Date of Establishment	Free or Subscription	Connection with Town	If Town Appropriates Money			Number of volumes
						Owned and controlled by town	Has town representation in management	Amount appropriated by town	
1	Andover [1]	Thomas Porter Library	1883	subscription	no	....	....	....	1,10
2	Ashford	Babcock Library	1865	free	no	....	yes	yes	3,247
3	Berlin	Berlin Free Library Association	1892	subscription	no	....	....	....	1,52
4	Berlin, East Berlin	East Berlin Library	1856	subscription	no	....	....	....	80
5	Bethlehem	Bethlehem Library Association	1857	....	no	....	....	....	1,00
6	Bolton	Bolton Free Library	1881	free	no	....	....	....	60
7	Branford	Blackstone Memorial Library	1893	free	no	....	....	....	6,00
8	Bridgeport	Public Library	1881	free	yes	yes	....	[2] $14,125.89	28,19
9	Bristol	Free Public Library	1892	free	yes	yes	entire control	¼ mill tax, giv. $2,900	5,72
10	Brooklyn	Brooklyn Town Library Assoc.	1890	subscription	no	....	....	....	1,317
11	Canaan, Falls Village	David M. Hunt	1891	subscription	no	....	....	....	1,67
12	Chatham, Middle Haddam	Public Lib. of Middle Haddam	1892	subscription	no	....	....	....	47
13	Cheshire	Cheshire Library	1892	subscript.[3]	yes[4]	no	yes[5]	....	38
14	Chester [6]	Chester Circulating Library	....	....	....	....	....	....	....
15	Clinton	Morgan Library Association	1873	subscription	no	....	....	....	1,29
16	Colchester	Colchester Library	1856	subscription	no	....	....	....	2,74
17	Columbia *	Columbia Free Library	1883	free	no	....	....	....	3,10
18	Cornwall	Cornwall Library Association	1869	subscription	no	....	....	....	2,38
19	Coventry	Porter Library	1886	subscription	no	....	.. ..	....	40
20	Coventry, South Coventry	South Coventry Library Assoc.	1880	subscription	no	....	....	... .	2,24
21	Cromwell	Belden Library Association	1888	subscription	no	....	....	....	1,02
22	Danbury	Danbury Library	1869	free	no	....	....	....	12,80
23	Durham	Durham Public Library	1894	free	yes	yes	yes	200.00	87
24	Eastford *	Eastford Circulating Library	1887	subscription	no	....	....	....	27
25	East Haddam, Moodus	East Haddam Public Library	1888	free	yes	yes	yes	300.00	3,89
26	East Hartford *	Raymond Library	1889	subscription	no	....	....	....	2,50
27	East Lyme, Niantic	Niantic Public Library	1888	subscription	no	....	....	....	30
28	East Windsor	Library Assoc. of Warehouse Pt.	....	subscription	no	....	....	....	84
29	Ellington *	Ellington Library Association	1881	subscription	no	....	....	....	65
30	Enfield *	Enfield Library Association	1884	subscription	no	....	....	....	.... ..
31	Essex, Centerbrook	Central Library	....	subscription	no	....	....	... .	38
32	Essex	Essex Library	1890	subscription	no	....	....	....	83
33	Essex, Ivoryton	Ivoryton Circulating Library	1871	subscription	no	....	....	....	83

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[1] Free after Nov., 1895.
[2] Proceeds of a tax of ¼ mill on the grand list, amounting this year to $14,125.89.
[3] Free after April, 1896.
[4] The town has received a bequest of $5,000 which it has voted into the hands of trustees who pay over the interest to the incorporated Library Association.
[5] The town appoints two to represent it on the Executive Board of Library Association.
[6] Library opened February 22, 1896, therefore no report. Already 250 membership cards have been given out.
[7] Receives State grant under Chapter CCLXXXIV, Acts of 1895.

F LIBRARIES, 1895–6

eceive State grant of books under Chapter CLXXVIII, Act of 1893

ADDITIONS DURING YEAR		Average number of borrowers' cards in use	STATISTICS OF BOOKS CIRCULATED					Days and Hours of Opening	TOWN	
By purchase	By gift		Total circulation	Non-fiction	Fiction	Juvenile	Other books for children			
......	......	......	......	......	......	......	......	Mondays, 4.30–5.30 P.M.	Andover	1
73	2	......	......	......	......	......	......	Thursdays, 8 A.M.–8 P.M.	Ashford	2
85	33	......	3,996	927	1,280	1,789	......	Wednesdays, 3–5 and 7–9 P.M.	Berlin	3
15	3	......	varies	447	365	few	......	Mondays, 7.30–9 P.M.	Berlin, East Berlin	4
......	......	......	300	......	......	......	......	Last Saturday before full moon, 7–8 P.M.	Bethlehem	5
......	3	......	......	......	......	......	......	Saturdays	Bolton	6
......	......	......	......	......	......	......	......	......	Branford	7
2,797	245	10,000	142,637	......	70 p. ct.	......	......	Daily, 9 A.M.–9.30 P.M. Reading room, Sundays, 1–9 P.M.; holidays, 9 A.M.–9 P.M.	Bridgeport	8
479	76	1,050	32,316	7,005	18,613	6,698	......	Daily, 9 A.M.–9 P.M.	Bristol	9
43	54	30	2,158	884	1,037	237	......	Winter, Wednesdays and Saturdays, 2.30–4.30 P.M. Summer, Saturdays only, 2.30–4.30 P.M.	Brooklyn	10
99	15	50	1,973	250	1,662	71	......	Mondays, Wednesdays, and Saturdays, 2–5, 6–9 P.M.	Canaan, Falls Village	11
49	......	40	......	......	......	......	......	Mondays, 7–9 P.M.; Saturdays, 3–5 P.M.	Chatham, Middle Haddam	12
30	20	......	400	......	380	......	......	Tuesdays and Fridays, 3–5 P.M.	Cheshire	13
......	......	......	......	......	......	......	......	......	Chester	14
50	......	......	712	......	......	......	......	Tuesdays, afternoon; Fridays, evening	Clinton	15
100	......	......	6,784	......	......	......	......	Wednesdays, evening; Saturdays, afternoon	Colchester	16
50	......	......	2,000	......	1,000	......	......	Fridays, afternoon and evening	Columbia	17
146	28	50	......	......	......	......	......	Saturdays, 2.30–5 P.M.	Cornwall	18
......	......	6	......	......	......	......	......	Fridays, and other times when convenient	Coventry	19
......	110	75	2,125	......	......	......	......	Tuesdays, 6–8 P.M.; Saturdays, 4–8 P.M.	Coventry, South Coventry	20
1	......	36	860	......	......	......	......	Tuesdays, 7–9.30 P.M.; Fridays, 4–6 P.M.	Cromwell	21
200	......	2,654	70,641	4,226	66,415	......	......	Daily	Danbury	22
324	84	61	6,268	......	......	......	......	Tuesdays, 3–5 P.M.; Saturdays, 3–5, 7–9 P.M.	Durham	23
19	......	......	......	......	......	......	......	Saturdays, 3–9 P.M.	Eastford	24
55	222	200	5,503	1,559	3,944	......	......	Daily, 1–9 P.M.	East Haddam, Moodus	25
60	35	50	3,400	......	......	......	......	Tuesdays, Thursdays, and Saturdays, 2–5, 7–9 P.M.	East Hartford	26
20	5	50	2,083	5 p. ct.	20 p. ct.	10 p. ct.	......	Mondays and Thursdays, 3–5, 6.30–8 P.M.	East Lyme, Niantic	27
......	......	50	1,200	......	almost wholly	......	......	Tuesdays, Thursdays, and Saturdays, 7–9 P.M.	East Windsor	28
8	3	......	......	......	......	......	......	Wednesdays and Saturdays	Ellington	29
none	none	4	......	......	......	......	......	......	Enfield	30
17	......	......	......	......	......	......	......	Wednesdays, 2–9 P.M.	Essex, Centerbrook	31
50	......	60	......	......	......	......	......	Saturdays and Wednesdays	Essex	32
......	2	......	......	......	......	......	......	Thursdays and Fridays, evening	Essex, Ivoryton	33

TABLE XLVI—REPORT

Libraries marked * have become free during year 1896 an

	Town	Name of Library	Date of Establishment	Free or Subscription	Connection with Town	If Town Appropriates Money			Number of volumes
						Owned and controlled by town	Has town representation in management	Amount appropriated by town	
34	Fairfield	Memorial Library	1876	subscription	no	....	....	....	2,149
35	Fairfield, Mill Plain	Mill Plain Library	1876	subscription	no	....	....	....	1,284
36	Fairfield, Southport	Pequot Library	1894	free	no	....	....	....	7,683
37	Farmington	Village Library	1890	free	no	......	....	....	3,193
38	Franklin	Pettis Library	....	free	no	....	....	....	581
39	Glastonbury	Glastonbury Library Association	1892	subscription	no	....	....	....	403
40	Granby, Falls Village	Frederick H. Cossitt Library	1889	free	entire control	yes	elects directors	no	2,407
41	Granby	Granby Public Library	1887	free	no	....	....	....	1,382
42	Granby, West Granby	West Granby Library	1895	free	no	....	....	....	400
43	Greenwich, Pemberwick	Pemberwick Library Assoc.	1880	free	no	....	....	....	1,338
44	Greenwich	Greenwich R. R. & Lib. Assoc.	1877	subscription	no	....	....	....	4,554
45	Griswold	Coit Library	....	free	no	....	....	....	1,600
46	Griswold, Jewett City	Slater Library	1884	free	no	....	....	....	3,400
47	Groton	Bill Memorial Library	1888	free	no	....	....	....	2,919
48	Groton, Mystic	Mystic and Noank Library	1892	subscription	no	....	....	....	4,238
49	Guilford	Guilford Free Library	1888	free	no	....	....	....	1,000
50	Haddam	Haddam Library	1887	subscription	no	....	....	....	1,000
51	Hampton [1]*	Hampton Library	1856	subscription	no	....	....	....	1,300
52	Hartford	Hartford Public Library	1892	free	[2]	no	....	$9,000.00	50,000
53	Hartford	Watkinson Library	1858	free	[3]	no	yes	none	47,533
54	Hebron	Hebron Library	1889	subscription	no	....	....	....	500
55	Huntington,* Shelton	Plumb Memorial Library	1892	free	yes	yes	yes	$1,100.00 yearly, or ⅘ of 1 p. ct. on gr. list	2,300
56	Killingly, Danielson	Free Public Library	1892	free	no [4]	....	....	....	3,500
57	Lebanon	Liberty Hill Library	1887	subscription	no	....	....	....	300
58	Ledyard	Bill Library	1867	subscription	no	....	....	....	3,030
59	Litchfield [5]	Wolcott Library	1865	subscription	no	....	....	....	1,000
60	Litchfield	Circulating Library	1870	subscription	no	....	....	....	4,500
61	Litchfield, Northfield	Gilbert	1892	free	no	....	....	....	1,600
62	Madison, East River	East River Library Company	1874	subscription	no	....	....	....	1,330
63	Madison [6]	Madison Circulating Library	1895	subscription	no	....	....	....	233
64	Manchester, South Manchester	South Manchester Free Library	1871	free	no	....	....	....	4,374
65	Middlefield [7]	Levi E. Coe	1893	free	no	....	....	....	1,590

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[1] On December 1, 1895, library loaned to town and another year can give a better account.
[2] Mayor *ex officio* member of board of directors. [3] Mayor *ex officio* a trustee.
[4] The library is owned and controlled by borough of Danielson.
[5] Wolcott Library is a reference library, contains no fiction, no juvenile books, and is composed entirely of standard books on art, science, history, and miscellaneous essays.
[6] The library was burned out during the last year; the loss was complete, no insurance. This is an entirely new start upon a firmer basis, as the present association is incorporated. Statistics are necessarily incomplete.
[7] Receives State grant under Chapter CCLXXXIV, Acts of 1895.

F LIBRARIES, 1895-6—*Continued*

eceive State grant of books under Chapter CLXXVIII, Act of 1893

Additions during Year		Average number of borrowers' cards in use	Statistics of Books Circulated					Days and Hours of Opening	Town	
By purchase	By gift		Total circulation	Non-fiction	Fiction	Juvenile	Other books for children			
25	....	25	500	....	....	....	....	Wednesdays, 3-5; Saturdays, 6-8 P.M.	Fairfield	34
27	4	14	....	....	....	....	....	Fridays, 3-4 P.M.	Fairfield, Mill Plain	35
532	3,245	... .	12,699	(1) 3,322	9,377	3,109	....	Daily, 8.30 A.M.-10 P.M.	Fairfield, Southport	36
83	41	200	6,595	1,578	2,607	2,410	....	Saturdays, 2-5, 6.30-9 P.M.	Farmington	37
....	6	....	....	....	....	....	....	Daily	Franklin	38
4	....	....	640	107	533	....	....	Tuesdays and Fridays, 3.30-5 P.M.	Glastonbury	39
212	20	300	3,289	....	59 p. ct.	....	....	Wednesdays and Saturdays, 2-5, 6-9 P.M.	Granby, Falls Village	40
53	35	....	2,042	....	....	....	....	Saturdays, 4-5, 6-8 P.M.	Granby	41
....	....	30	100	....	....	....	....	Sundays and Wednesdays, evening	Granby, West Granby	42
24	....	....	1,316	....	....	....	....	Daily, 4.30-6, 7-9 P.M.	Greenwich, Pemberwick	43
....	44	63	2,247	50 p. ct.	50 p. ct.	....	....	Daily, 9-12 A.M.; 2-6, 7-9 P.M.	Greenwich	44
100	....	25	50	20	30	....	....	Tuesdays, afternoon and evening	Griswold	45
250	....	325	8,666	1,143	7,523	....	....	Tuesdays, Thursdays, and Saturdays, 2-8 P.M.	Griswold, Jewett City	46
76	47	475	8,057	2,702	5,349	....	....	Tuesdays, 3-6; Saturdays, 3-7 P.M.	Groton	47
....	137	300	8,000	20 p. ct.	80 p. ct.	....	....	Tuesdays, Thursdays, and Saturdays, 9-12 A.M.; 2-5.30, 7-8.30 P.M.	Groton, Mystic	48
....	6	300	....	....	....	....	....	Wednesdays, Saturdays, evening; Thursdays, afternoon	Guilford	49
....	....	....	....	....	....	....	....	Saturdays, afternoon and evening	Haddam	50
35	....	....	....	....	....	....	....	Daily, afternoon	Hampton	51
5,667	345	8,000	207,685	29,271	126,725	45,238	6,451	Daily, 9 A.M.-8 P.M.; Saturdays, 9 P.M.	Hartford	52
958	264	....	....	....	....	....	....	Daily, 9.30-5.30	Hartford	53
....	....	....	....	....	....	....	....	Fridays, afternoon and evening	Hebron	54
none	25	1,000	21,681	2,240	19,441	....	....	Daily, 1-5, 6-9 P.M.	Huntington, Shelton	55
161	56	....	17,493	4,095	13,398	....	....	Evenings, 6-9; Saturdays, 2-5	Killingly, Danielson	56
none	none	....	....	....	....	....	....	....	Lebanon	57
75	100	19	....	....	....	....	....	Saturdays, 9 A.M. to 4 P.M.; Sundays, 12-1 P.M.	Ledyard	58
75	....	....	150	....	....	....	....	Wednesdays, 11 A.M.-1 P.M.; Saturdays, 2.30-5.30 P.M.	Litchfield	59
150	....	....	4,300	300	4,000	300	....	Wednesdays, 11 A.M.-1 P.M.; Saturdays, 2-5.30 P.M.	Litchfield	60
1,150	....	60	....	....	....	....	....	Fridays, evening; summer 7-9 P.M.; winter, 6.30-8 P.M.	Litchfield, Northfield	61
....	....	....	1,100	100	850	100	50	Daily, 2.30-5, 6-9 P.M.	Madison, East River	62
....	....	....	....	....	....	....	....	Wednesdays and Saturdays, 3-6, 6.30-8.30 P.M.	Madison	63
255	....	1,053	14,002	1,606	6,135	6,261	....	Daily, 3-6, 7-9 P.M.	Manchester, South Manchester	64
....	73	38	3,300	1,000	2,000	....	....	Saturdays, 2-6 P.M. in summer; 1-4 P.M. in winter.	Middlefield	65

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[1] In December we adopted the non-fiction card; it has markedly increased the circulation of non-fiction. For January, 1896, the fiction per cent. was 65; for December, 1895, 66, the lowest since the opening of the library; the highest being 81, in August, 1895.

TABLE XLVI—REPORT

Libraries marked * have become free during year 1896 and

	Town	Name of Library	Date of Establishment	Free or Subscription	Connection with Town	If Town Appropriates Money			Number of volumes
						Owned and controlled by town	Has town representation in management	Amount appropriated by town	
66	Middletown	Russell Free Library	1874	free	no	....	....	$1,000.00	10,750
67	Milford	Taylor Library	1894	free	yes	[1]	no	1,000.00	6,045
68	Montville	Raymond Library	1884	subscription	no	....	....	....	2,199
69	Morris, East Morris	East Morris Library Association	....	subscription	no	....	....	....	383
70	Naugatuck	Howard Whittemore Memorial Library	1888	free	no	....	....	....	4,057
71	New Britain	New Britain Institute	....	subscription	no	....	....	....	14,738
72	New Canaan	New Canaan R. R. and Library Association	1877	free	yes	yes	yes	100.00	2,000
73	New Haven	Free Public Library	1886	free	no	....	....	[2]	30,000
74	New Haven	Young Men's Institute	....	subscription	no	....	....	....	19,351
75	New London	Public Library	1891	free	no	....	....	....	14,450
76	New Milford	New Milford Library	1886	subscription	no	....	....	....	2,792
77	New Milford, Northville	Phœnix Library	1829	subscription	no	....	....	....	678
78	Newington	Newington Free Library	1895	free	yes	yes	yes	50.00	332
79	Newtown	Newtown Library	1876	subscription	no	....	....	....	3,079
80	Norfolk	Norfolk Library	1889	free	no	....	....	....	7,023
81	North Canaan *	Douglass Library	....	subscript. [3]	yes	yes	yes	100.00	3,100
82	North Haven	Bradley Memorial Library	1884	free	no	no	no	rent and $200.00	2,000
83	Norwalk	Norwalk Library	1865	subscript. [4]	no	....	....	....	3,250
84	Norwalk, South Norwalk	South Norwalk Public Library	1885	free	no [5]	no[5]	....	....	2,720
85	Norwich	Otis Library	1850	free	yes	no	yes	4,500.00	20,336
86	Old Lyme	Old Lyme Public Library	1872	free	no	....	....	....	3,600
87	Old Saybrook, Saybrook	Acton Library	....	subscription	yes	....	....	100.00	4,100
88	Oxford	Oxford Library	1883	free	no	....	....	....	850
89	Plainfield	Plainfield Library	1890	subscription	no	....	....	....	632
90	Plainfield, Central Village	Central Village Public Library	1891	subscription	no	....	....	....	500
91	Plainville	Plainville Free Public Library	1894	free	yes	yes	yes	100.00	1,343
92	Plymouth, Terryville [6]	Terryville Lyceum	1842	subscription	no	....	....	....	1,200
93	Plymouth *	Plymouth Library Association	1891	subscription	no	....	....	....	1,700
94	Pomfret	Pomfret Library	1882	subscription	no	....	....	....	3,377
95	Pomfret, Abington	Social Library	1793	subscription	no	....	....	....	1,016
96	Portland	Buck Library	1895	free	yes	yes	yes	400.00	1,026
97	Prospect *	Prospect Library	1886	subscription	yes	....	....	....	400

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[1] Held in trust by trustees for town.
[2] City appropriated $12,000.
[3] Made free in November, 1895.
[4] Made free during year.
[5] Library is owned and controlled by city.
[6] Free town library was opened to public December 7, 1895.

F LIBRARIES, 1895-6 — *Continued*

ceive State grant of books under Chapter CLXXVIII, Act of 1893

ADDITIONS URING YEAR		Average number of borrowers' cards in use	STATISTICS OF BOOKS CIRCULATED					Days and Hours of Opening	TOWN	
By purchase	By gift		Total circulation	Non-fiction	Fiction	Juvenile	Other books for children			
179	23	450	20,976	3,164	17,812	....	....	Daily, 3-6, 7-9 P.M.	Middletown	66
.....	4,000	980	24,863	20 p. ct.	50 p. ct.	20 p. ct.	10 p. ct.	Daily, 9 A.M.-1 P.M., 3-5 P.M.; Evenings, Tuesday, Thursday, and Saturday	Milford	67
186	4	50	950	....	....	....	....	Saturdays, 2-4 P.M.	Montville	68
.....	....	25	....	....	....	....	....	First Monday evening of every month, 7-9	Morris, East Morris	69
379	246	430	17,256	2,259	14,997	....	....	Mondays, Wednesdays, Saturdays, 3-5, 7-9 P.M.	Naugatuck	70
2,161	162	500	23,568	7,621	15,947	2,919	....	Week days, 9-12.30 A.M., 2-6, 7-9.30 P.M.; Sundays, 2-6 P.M.	New Britain	71
150	25	210	1,200	200	700	300	....	Wednesdays and Saturdays, 2-6 P.M.	New Canaan	72
2,765	313	11,000	232,017	70,155	161,859	46,742	15,000	Daily, 9 A.M.-8.30 P.M.; Sundays from Oct. to May inclusive for reading, 1-6 P.M.	New Haven	73
774	46	515	38,855	11,809	27,046	....	....	Daily, 8 A.M.-9 P.M.	New Haven	74
1,140	110	3,500	72,500	19,000	53,000	....	....	Daily, 10 A.M.-1 P.M., and 2-6 P.M.; Evenings, Tuesday and Saturday to 9 P.M.	New London	75
94	6	170	4,587	470	4,117	....	....	Tuesdays, Thursdays, and Saturdays, 2-5, 7-8 P.M.	New Milford	76
10	....	....	....	......	....	....	....	Daily	New Milford, Northville	77
.....	....	100	448	....	....	....	......	Wednesdays, evening 7.30-9; Saturdays, afternoon 2.30-4.30	Newington	78
110	....	70	2,206	751	1,030	425	......	Tuesdays and Saturdays, 1-9 P.M.	Newtown	79
567	133	950	13,795	....	....	....	....	Daily, 9 A.M.-9 P.M.	Norfolk	80
125	....	300	2,000	....	....	....	....	Saturdays, 1-5 P.M.	North Canaan	81
83	8	200	5,824	25 p. ct.	75 p. ct.	....	....	Tuesdays and Saturdays, 2-4.30, 7-9 P.M.	North Haven	82
.....	....	....	300	20 p. ct.	60 p. ct.	20 p. ct.	....	Daily, 2-6 P.M.; in summer, evenings	Norwalk	83
228	60	1,000	18,940	....	60 p. ct.	....	....	Daily, 9.30 A.M.-9 P.M., with intermissions; Sundays, 2.30-5.30 P.M.	Norwalk, South Norwalk	84
1,084	260	5,000	97,562	20,058	53,736	19,998	3,770	Daily, 9.30 A.M.-9 P.M.	Norwich	85
.....	....	....	2,500	....	....	....	....	Saturdays, 2-4 P.M.	Old Lyme	86
49	51	....	....	....	....	....	....	Tuesdays, Thursdays, and Saturdays, 2-8.30 P.M.	Old Saybrook, Saybrook	87
50	....	....	....	....	....	....	....	Daily	Oxford	88
20	2	....	659	209	450	105	55	Wednesdays and Saturdays, afternoon and evening	Plainfield	89
26	4	20	380	75	265	30	10	Saturdays, 4-6 P.M.	Plainfield, Central Village	90
111	6	250	9,719	629	7,746	1.344	....	Wednesdays, 2-5 P.M.; Saturdays, 2-5.30, 6.30-9 P.M.	Plainville	91
28	....	35	1,352	15 p. ct.	60 p. ct.	25 p. ct.	....	Evenings, Friday	Plymouth, Terryville	92
114	....	....	3,000	10 p. ct.	75 p. ct.	15 p. ct.	....	Two evenings	Plymouth	93
175	25	6,000	2,000	3,500	500	....	....	Tuesdays and Fridays, 2 hours	Pomfret	94
.....	....	10	119	13	97	....	6	First Wednesday in each month, 2-4 P.M.	Pomfret, Abington	95
77	256	120	4,034	....	....	......	....	Wednesdays, 1-3 P.M.; Saturdays, 1-3, 7-9 P.M.	Portland	96
.....	....	20	....	....	....	....	....	....	Prospect	97

TABLE XLVI—REPOR

Libraries marked * have become free during year 1896 an

	Town	Name of Library	Date of Establishment	Free or Subscription	Connection with Town	If Town Appropriates Money			Number of volumes
						Owned and controlled by town	Has town representation in management	Amount appropriated by town	
98	Putnam	Putnam Free Public Library	1884	free	yes	yes	yes	$500.00	1,50
99	Ridgefield	Ridgefield Library	....	subscription	no	....	....	....	3,15
100	Rocky Hill	Rocky Hill Library	1794	subscription	no	....	....	....	1,24
101	Roxbury *	Roxbury Public Library	1875	subscription	no	....	....	....	60
102	Salisbury	Scoville Memorial Library Assoc.	1895	free	no	....	....	....	3,00
103	Seymour	Seymour Public Library	....	free	yes	yes	yes	300.00	1,13
104	Sharon, Ellsworth	Everitt Library	1869	free	no	....	....	....	1,30
105	Sharon	Hotchkiss Library	1893	subscription	no	....	....	....	2,84
106	Simsbury	Simsbury Free Library	1874	free	yes	no	no	200.00	3,86
107	Stafford, Stafford Springs	Public Library of Stafford	....	free	no	....	....	....	2,00
108	Stamford	The Ferguson Library	1880	subscription	no	....	....	....	7,00
109	Stonington	Stonington Free Library	1887	subscription	no	....	....	....	4,00
110	Stratford [1]	The Stratford Library Assoc.	1885	subscription	....	....	......	....	4,00
111	Suffield	Suffield Free Public Library	1884	free	yes	yes	yes	300.00	2,33
112	Thomaston	Laura Andrews Free Public Lib.	1885	free	no [2]	....	....	....	2,36
113	Thompson, New Boston	New Boston Library Assoc.	1855	....	no	....	....	....	70
114	Torrington	Torrington Library	1865	subscription	no	....	....	....	4,47
115	Union	Union Free Public Library	1894	free	yes	yes	yes	20.00	55
116	Vernon, Talcottville	Talcott Free Library	1881	free	no	....	....	....	1,66
117	Wallingford	Wallingford Public Library	1881	subscription	no	....	....	....	3,40
118	Washington	Washington R. R. and Circulating Library Association	1881	subscription	no	....	....	....	2,40
119	Waterbury	Silas Bronson Library	1870	free	yes [3]	....	yes	nothing	51,44
120	Watertown	Watertown Library Association	1865	free	no	....	....	....	7,35
121	Westbrook	Westbrook Public Library	1878	free	yes	yes	yes	100.00	59
122	West Hartford	West Hartford Free Library	1882	free	no	....	....	....	2,15
123	Westport	Westport R. R. and Lib. Assoc.	....	subscription	no	....	....	....	1,53
124	Wethersfield	Wethersfield Library	1893	free	yes	partly	yes	300.00	2,00
125	Wilton	Wilton Library Association	1895	subscription	no	....	....	....	42
126	Winchester, West Winsted	Beardsley Library	1874	subscription	no	....	....	....	7,32

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[1] The library has been closed since the last of March, waiting for the occupancy of new building.
[2] Furnishes room, fuel, and light.
[3] Managed by board of agents appointed by the town.

F LIBRARIES, 1895–6 — *Continued*

ceive State grant of books under Chapter CLXXVIII, Act of 1893

ADDITIONS DURING YEAR		Average number of borrowers' cards in use	STATISTICS OF BOOKS CIRCULATED					Days and Hours of Opening	TOWN	
By purchase	By gift		Total Circulation	Non-fiction	Fiction	Juvenile	Other books for children			
300	10	400	11,000	....	....	....	....	Wednesdays and Saturdays, 3–9 P.M.	Putnam	98
100	....	....	2,172	879	932	361	....	Wednesdays and Saturdays, 2–4 P.M.; Fridays, evening, 7–9 in winter: in summer, daily, 10–12 A.M.	Ridgefield	99
43	6	80	1,600	8 p. ct.	90 p. ct.	2 p. ct.	....	In winter, Fridays, afternoon and evening once in 2 weeks; in summer, every week.	Rocky Hill	100
.....	......	15	....	....	....	....	....	During business hours each day	Roxbury	101
10	890	412	7,000	700	4,500	1,500	300	Daily, 2–5, 7–9.30 P.M.	Salisbury	102
171	91	94	5,115	....	....	....	....	Saturdays, 4-6, 7–9 P.M.	Seymour	103
25	....	50	260	100	130	30	....	First and third Tuesdays, 1–3 P.M.	Sharon, Ellsworth	104
27	68	150	5,598	783	3,568	1,247	....	Daily, 2-5 P.M.; Wednesday, Friday, and Saturday evenings, 7–9 P.M.	Sharon	105
240	....	300	5,500	....	....	....	....	Wednesdays and Saturdays, 3–5, 6–9 P.M.	Simsbury	106
46	10	238	8,157	569	5,239	2,349	....	Wednesdays and Saturdays, 3–8 P.M.	Stafford, Stafford Springs	107
......	....	194	8,948	2,065	6,883	....	....	Daily, 9–12 A.M.; 2.30–5.30, 7–10 P.M.	Stamford	108
60	146	604	13,794	1,384	12,410	....	....	Daily, 2 hours morning; 2 hours afternoon; 1½ hours evening	Stonington	109
5	120	....	....	....	....	....	....	....	Stratford	110
502	134	383	4,353	262	1,347	....	462	Daily, 2–6; 7–9 P.M.	Suffield	111
500	....	....	12,000	....	....	....	....	Tuesdays and Fridays, 2–5, 7–9 P.M.	Thomaston	112
none	none	....	150	....	50 p. ct.	....	....	Saturdays, 4–7 P.M.	Thompson, New Boston	113
144	60	344	16,562	1,533	10,281	4,748	....	Daily, 1.30–5.30, 6.30–9 P.M.	Torrington	114
.....	16	100	1,310	170	518	510	112	Wednesdays and Saturdays, 12 M.–8 P.M.	Union	115
......	17	....	1,000	....	75 p. ct.	....	....	Saturdays, afternoon; Sundays, noon	Vernon, Talcottville	116
86	124	200	6,619	817	4,339	1,463	....	Tuesdays, Thursdays, and Saturdays, 2–5.45 P.M.; evenings, 6.30–9.30	Wallingford	117
67	20	75	1,811	34 p. ct.	60 p. ct.	6 p. ct.	....	Winter, Tuesdays, Thursdays, and Saturdays, 2.30–5.30 P.M.; Saturday evening, 7–9. Summer, daily, 2.30–5.30 P.M.; Saturday evening, 7-9.	Washington	118
862	232	2,500	71,005	13,677	57,328	....	....	Daily, 9 A.M.–9 P.M.	Waterbury	119
355	53	121	11,733	3,050	8,683	....	....	Tuesdays and Fridays, 2–8.30 P.M.	Watertown	120
......	....	....	....	....	....	....	....	....	Westbrook	121
44	21	....	....	....	....	....	....	Summer, daily, 4–9 P.M.; winter, daily, 3–8 P.M.	West Hartford	122
28	6	125	2,045	400	1,645	....	....	Wednesdays and Saturdays, afternoon; every evening, 7–9	Westport	123
80	125	150	6,571	346	4,448	1,777	....	Wednesdays, 2.30–4.30 P.M.; Mondays and Saturdays, 7–9 P.M.	Wethersfield	124
211	217	119	1,348	....	....	....	....	Wednesdays and Saturdays, 3–5 P.M.; Saturdays, 7.45–8.15 P.M.	Wilton	125
204	64	150	8,896	2,780	116	....	972	Daily, 1.15–5, 7–9 P.M.	Winchester, West Winsted	126

TABLE XLVI—REPOR

Libraries marked * have become free during year 1896 a

	Town	Name of Library	Date of Establishment	Free or Subscription	Connection with Town	If Town Appropriates Money			Number of volumes
						Owned and controlled by town	Has town representation in management	Amount appropriated by town	
127	Windham, Willimantic	Dunham Hall Library	1878	free	no	....	....	....	4,5
128	Windham, Willimantic	Free Public Library	....	free	no	....	....	....	3,9
129	Windsor *	Windsor Library	1889	subscription	no	....	....	....	1,0
130	Windsor Locks	W. C. T. U. Circulating Library	....	subscription	no	....	....	....	5
131	Woodbury	Woodbury Library Association	1850	free	no	....	....	....	6
132	Woodstock	Woodstock Library	1880	subscription	no	....	....	....	1,6
133	Woodstock, West Woodstock	Woodstock Library	1889	subscription	no	....	....	....	3

F LIBRARIES, 1895-6 — *Concluded*

eive State grant of books under Chapter CLXXVIII, Act of 1893

ADDITIONS URING YEAR		Average number of borrowers' cards in use	STATISTICS OF BOOKS CIRCULATED					Days and Hours of Opening	TOWN	
y pur-chase	By gift		Total circulation	Non-fiction	Fiction	Juvenile	Other books for children			
100	....	300	8,468	2,000	5,000	1,000	....	Daily, 12 M.–9 P.M.	Windham, Willimantic	127
254	10	800	12,671	1,606	11,065	....	....	Wednesdays and Saturdays, 2–5, 7–9 P.M.	Windham, Willimantic	128
48	....	313	299	....	....	....	....	Wednesdays and Saturdays, 3.30–5.30 P.M.; Saturday evening, 6.30–9	Windsor	129
....	....	42	477	....	....	....	....	Daily, 9 A.M.–9 P.M.	Windsor Locks	130
100	....	90	....	....	....	....	....	Wednesdays, 4–6 P.M.	Woodbury	131
40	10	30	1,000	200	800	200	....	Fridays, 3–5 P.M.	Woodstock	132
....	....	....	....	....	....	....	....	No regular days or hours of opening	Woodstock, West Woodstock	133

TABLE XLVII—REPORT

	Town	Expenses				Is there a Library Building.		
		Income and how Derived	Amount expended for salaries	Amount expended for books	Amount expended for periodicals	Building	Cost	Name of Donor
1	Andover	Subscriptions	nothing	....	....	no	....	....
2	Ashford	Fund $3,000 yielding $120	$40.00	$80.00	none	yes	$400	Peter Platt
3	Berlin	Associate members paying $10 a year; annual members paying $1 a year	....	75.06	$12.25	yes	1,300	....
4	Berlin, East Berlin	From membership fees	nothing	varies	nothing	no	....	....
5	Bethlehem	Bids, fines, and membership fees	nothing	20.00	7.00	no	....	In town hall
6	Bolton	....	....	....	....	no	....	....
7	Branford	$6,000 per year from endowment given by Mr. T. B. Blackstone	....	....	....	yes	300,000	Timothy B. Blackstone
8	Bridgeport	$14,125.89 derived from taxation	5,926.86	2,954.54	814.58	yes	....	Mrs. Catharine Pettengill
9	Bristol	$3,088.78—Taxation, $2,901.08; fines, etc., $141.85; lecture course, $45.85.	1,146.07	776.26	158.56	no	....	....
10	Brooklyn	Interest of fund, subscriptions, dues, fines and entertainments	25.00	....	14.00	no	....	....
11	Canaan, Falls Village	Interest of $20,000	270.00	130.35	31.50	yes	9,000	Wealthy A. and Catherine E. Hunt
12	Chatham, Middle Haddam	Subscription, entertainments and gifts	12.75	12.10	9.30	no	....	....
13	Cheshire	$1 membership fees, rent of books to others not members	....	25.00	[1]	......	....	....
14	Chester	....	....	....	....	......	....	....
15	Clinton	Subscriptions and rental of books	nothing	....	....	no	....	Use room in Morgan School building
16	Colchester	Subscriptions and interest from a small fund	....	....	....	no	....	....
17	Columbia	Income of fund, $1,500 given by Saxton B. Little of Meriden, for books and repairs, and $20 from town	20.00	....	....	yes	....	Inhabitants of town
18	Cornwall	$74 interest on Calhoun legacy, fines, and loans	25.00	119.00	10.75	no	....	Use of building by the Misses Kellogg
19	Coventry	Subscriptions	none	....	....	no	....	....
20	Coventry, South Coventry	Gifts and entertainments	25.00	....	15.00	yes	....	....
21	Cromwell	Subscriptions and dues	39.00	40.00	20.45	no	....	....
22	Danbury	From rental	1,424.00	390.19	108.05	yes	30,000	E. Moss White's family
23	Durham	Town appropriation	nothing	200.00	nothing	no	....	....
24	Eastford	From subscriptions	....	....	....	......	....	....
25	East Haddam, Moodus	$600—$300 or more from individuals; $300 from town	320.00	50.00	100.00	yes	....	....
26	East Hartford	$500 derived from money left by Albert C. Raymond	275.00	75.00	45.00	yes	10,000	Albert C. Raymond
27	East Lyme, Niantic	Annual fees, and monthly social, or other entertainments	nothing	6.00	40.00	no	....	Money above actual expenses saved for building fund
28	East Windsor	Subscriptions, and proceeds of entertainments	50.00	....	6.50	no	....	....
29	Ellington	None	....	9.45	....	no	....	....
30	Enfield	Subscriptions $1 a year	....	....	....	no	....	....
31	Essex, Centerbrook	Subscriptions and rent	....	5.00	....	no	....	....

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[1] Periodicals which have been circulated by a magazine club are afterwards left at the library.

F LIBRARIES, 1895–6 — *Continued*

To what extent is the Library used by School Children and Teachers	Age limit for children	Percentage of children's books circulated	Duplicate copies of books for use in public schools	Volumes on education	Town	
e children and teachers have use of books free	no	....	no	....	Andover	1
is not used by the public schools	no	....	no	....	Ashford	2
....	no	45	no	....	Berlin	3
oks are free for reference and use in public schools	no	....	no	....	Berlin, East Berlin	4
ut little children complain that there are few juvenile books	no	small	no	no	Bethlehem	5
ry little	no	....	no	....	Bolton	6
....	....	....	....	....	Branford	7
e connection is wholly informal [1]	12 [2]	....	yes	yes	Bridgeport	8
achers are allowed to take as many books as desired for school work. Pupils are encouraged to take books	no	20	no	60	Bristol	9
sed by four schools a part of the year	no	12½	no	17	Brooklyn	10
....	no	....	no	....	Canaan, Falls Village	11
o more than by others	no	....	no	2	Chatham, Middle Haddam	12
rowing in favor	....	....	....	....	Cheshire	13
....	....	....	....	....	Chester	14
....	....	....	....	....	Clinton	15
....	....	....	....	....	Colchester	16
....	....	....	....	....	Columbia	17
....	....	....	....	....	Cornwall	18
ery little	no	....	....	....	Coventry	19
ree to the teachers for the use of school children	no	....	....	....	Coventry, South Coventry	20
....	no	50	no	30	Cromwell	21
....	14	....	....	....	Danbury	22
oth teachers and scholars draw books, but chiefly for home reading	no	....	no	....	Durham	23
....	no	....	no	....	Eastford	24
ibrary is used to a very great extent by school children, and some of the teachers in the remote districts have used it to good purpose, the teachers nearer have been those who could see no connection between the library and the public schools	no	50	few	....	East Haddam, Moodus	25
nly used by members	12	....	no	....	East Hartford	26
eachers have free tickets for use in school	no	10	no	no	East Lyme, Niantic	27
one with reference to school work	no	small	no	no	East Windsor	28
ot any	no	....	....	....	Ellington	29
....	no	....	....	....	Enfield	30
....	no	....	no	....	Essex, Centerbrook	31

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[1] The connection is fairly satisfactory as regards real work; the amount of use varies with the literary tendencies and train-
ng of the persons who direct the schools for the time being, but the use of the library by really cultivated teachers is steady,
nd is not increased or diminished by temporary influences.

[2] Nominally twelve years, but it is not strictly adhered to.

TABLE XLVII — REPOR

	Town	Expenses				Is there a Library Building		
		Income and how Derived	Amount expended for salaries	Amount expended for books	Amount expended for periodicals	Building	Cost	Name of Donor
32	Essex	Nominal subscription, rental of books, and fines	nothing	....	....	no	....	....
33	Essex, Ivoryton	Memberships and gifts	....	....	$25.00	yes	$5,000	....
34	Fairfield	....	$25.00	....	....	no	....	Use lower room of Academy
35	Fairfield, Mill Plain	Membership fees	....	....	....	no	....	....
36	Fairfield, Southport	$2,355 — Subscriptions from town people, $1,455; Mrs. Monroe, $900	1,171.00	$566.58	324.35	yes	....	Mr. and Mrs. E. E Monroe
37	Farmington	$3,262.52—Permanent funds, $2,969.50; membership fees, $96; dividends, $142.62; gifts, concerts, fines, $54.40	67.30	126.48	....	no	....	....
38	Franklin	....	....	....	....	no	....	....
39	Glastonbury	Variable, derived from fees, etc.	....	....	....	no	....	....
40	Granby, Falls Village	$350 — $300 income from fund invested by town treasurer; $50 rent of hall, and other sources	125.00	104.50	32.55	yes	3,867	Frederick H. Cossitt o New York left $10,000 for library build ing
41	Granby	Voluntary contributions	....	....	....	......	....	....
42	Granby, West Granby	....	....	....	....	......	....	....
43	Greenwich, Pemberwick	Russell, Burdsall & Ward gave the building, and pay all the running expenses	300.00	36.00	38.00	yes	5,000	Russell, Burdsell & Ward
44	Greenwich	About $700 from subscriptions, memberships and entertainments	360.00	100.00	100.00	yes	25,000	Mrs. A. A. Anderson
45	Griswold	From interest on bonds	40.00	100.00	25.00	no	....	....
46	Griswold, Jewett City	Gift	300.00	108.33	52.94	yes	8,000	W. A. Slater
47	Groton	$520 — From fund given by Mr. Bill, $500; fines, and catalogues sold, $20	170.00	52.00	44.45	yes	20,000	Frederic Bill
48	Groton, Mystic	Partly subscriptions, partly from donor, Elihu Spicer	360.00	20.00	....	yes	....	Elihu Spicer
49	Guilford	Public entertainments	50.00	....	none	yes	1,500	E. P. Dickie and other
50	Haddam	Subscriptions	25.00	....	....	no	....	....
51	Hampton	About $35	....	....	....	no	....	....
52	Hartford, Public	$15,571.40 — City, $9,000; Wadsworth Athenæum, $1,776.35; other funds, $4,795.05	4,637.26	6,363.62	564.92	yes	....	Library occupies a par of Wadsworth Athe næum
53	Hartford	From funds left by founder, David Watkinson, and an uncertain sum from the division of income of funds held by the Wadsworth Athenæum	....	1,700.00	300.00	yes	....	Various donors
54	Hebron	Annual fees and funds invested from gifts and legacies	nothing	nothing	3.52	no	....	....
55	Huntington, Shelton	$1,100 yearly from town	468.00	....	50.00	yes	27,000	David W. Plumb by Horace S. Plumb
56	Killingly, Danielson	½ mill tax on property within borough limits, and interest on a legacy of $2,000	300.00	200.00	42.65	no	....	....
57	Lebanon	....	....	....	....	no	....	....
58	Ledyard	Fund and subscriptions	25.00	75.00	nothing	yes	4,000	Bill Brothers

F LIBRARIES, 1895-6 — *Continued*

To what extent is the Library used by School Children and Teachers	Age limit for children	Percentage of children's books circulated	Duplicate copies of books for use in public schools	Volumes on education	Town	
e of special books given to pupils of the Pratt chool, selected by the principal	no	....	no	....	Essex	32
nsiderable	no	33	no	....	Essex, Ivoryton	33
y child that can write his name attending the pub- ic schools in the town has privilege of drawing ooks free	no	....	....	....	Fairfield	34
....	no	....	no	....	Fairfield, Mill Plain	35
achers are allowed to take any number of books ut at a time for schoolroom use. Most of the eachers have taken advantage of this privilege. School children are our best readers and borrowers	no	24	no	50	Fairfield, Southport	36
ed very freely by both for reference and general eading	no	30	no	....	Farmington	37
brary used chiefly by children	no	....	....	20	Franklin	38
ed largely by pupils of free academy	....	....	....	....	Glastonbury	39
ve out of the eleven teachers in town draw books egularly. A large per cent. of the children in his section of the town draw books	12	12	no	25	Granby, Falls Village	40
obably one-half drawn are by children	....	....	....	....	Granby	41
....	no	....	....	....	Granby, West Granby	42
ed every day somewhat by the teachers and pupils of the district school near by	no	50	no	107	Greenwich, Pemberwick	43
....	....	....	....	....	Greenwich	44
ry little	no	very few	no	....	Griswold	45
....	13	....	no	....	Griswold, Jewett City	46
a small extent	12	....	no	30	Groton	47
iberal patronage from both	no	12	no	50	Groton, Mystic	48
ot very much used by the schools	12	20	....	....	Guilford	49
ot at all	....	....	no	....	Haddam	50
ot any	....	....	....	....	Hampton	51
a large extent; teachers are allowed as many books as they need for school work	no	25	800	400	Hartford, Public	52
reely and constantly, but its limitations fit it more for teachers than children; the teachers do not to a large extent avail themselves of its treasures	no	....	no	....	Hartford	53
....	no	....	no	....	Hebron	54
onsiderable	12	....	no	....	Huntington, Shelton	55
ome teachers use the library largely, having out from two to six books continually, others not at all; in the higher grades the children make good use of library for reference	12 [1]	33	no	....	Killingly, Danielson	56
....	no	....	no	....	Lebanon	57
s not used by children and teachers	....	....	....	....	Ledyard	58

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[1] Children may use books on parents' cards; practically there is no age limit. We have many child readers under twelve years who are devoted to the *Chatterbox* and picture story books, and they are the most grateful patrons of the library.

TABLE XLVII — REPORT

	Town	Expenses				Is there a Library Building		
		Income and how Derived	Amount expended for salaries	Amount expended for books	Amount expended for periodicals	Building	Cost	Name of Donor
59	Litchfield	From a fund of $2,500 given by the donor and founder, the late J. Huntington Wolcott of Boston, Mass.	none	100.00	none	no	....	Use of rooms given by Geo. M. Woodruff
60	Litchfield	From subscription fees and the loan of books at 5 cents a copy	100.00	150.00	none	no	....	....
61	Litchfield, Northfield	$250 from fund left by W. L. Gilbert	70.00	10.85	none	no	....	....
62	Madison, East River	$286 — $260 from funds; $26 from subscribers	120.00	26.00	40.00	yes	2,500	Mr. and Mrs. H. B Wasburn
63	Madison	No source of income except from subscriptions and taxes on books	....	....	....	no	....	....
64	Manchester, South Manchester	Cheney Bros. pay entire expense	525.00	400.00	125.00	yes	5,000	....
65	Middlefield	From entertainments and taxes on books kept more than 2 weeks	30.00	....	....	yes	....	Levi E. Coe
66	Middletown	From fund	....	....	....	yes	....	Mrs. Frances Russell
67	Milford	Town appropriates $1,000	500.00	none	94.96	yes	24,500	Henry A. Taylor
68	Montville	About $300 from a fund	45.00	275.00	....	yes	2,300	Albert C. Raymond
69	Morris, East Morris	Subscription	....	....	....	no	....	....
70	Naugatuck	$2,200, income of endowment fund	1,264.00	792.84	82.67	yes	.... .	John Howard Whittemore
71	New Britain	$9,629.46 — Invested funds, $7,944.73; installment of bequest, $1,200; library tickets, fines, etc., $435.14; balance last year, $49.59	2,744.99	....	....	no	....	....
72	New Canaan	Town, State, and entertainments	78.00	200.00	....	yes	5,000	Citizens
73	New Haven, Public	$16,600 — $12,000 from city appropriation; $3,150 from Marett book fund; remainder, miscellaneous sources.	5,755.62	3,560.59	673.14	yes	110,000	City of New Haven
74	New Haven	About $1,000 from rents, subscription, and funds	1,274.53	872.85	568.56	yes	....	Library is in business block
75	New London	From endowment, subject to annuities	....	13.50	160.00	yes	50,000	Henry P. Haven
76	New Milford	$407.32 membership fees and voluntary contributions	143.00	80.17	13.75	no	....	....
77	New Milford, Northville	Fund, subscription, and taxes	none	11.48	none	no	....	....
78	Newington	Town appropriation, $50	....	......	16.05	no	....	....
79	Newtown	Subscriptions and entertainments	65.00	100.00	10.00	no	....	....
80	Norfolk	Private sources	....	....	....	yes	....	Miss Isabella Eldridge
81	North Canaan	From fund and subscriptions	60.00	125.00	....	yes	.... ..	Edmund Lawrence
82	North Haven	$300 — $200 from town; $100 income from endowment fund	100.00	100.00	25.00	no	....	Occupy room in town hall
83	Norwalk	....	....	....	....	no	....	....

LIBRARIES, 1895–6—*Continued*

o what extent is the Library used by School Children and Teachers	Age limit for children	Percentage of children’s books circulated	Duplicate copies of books for use in public schools	Volumes on education	Town	
y little	no	4	no	30	Litchfield	59
y little	....	....	....	....	Litchfield	60
e teachers generally have books in hand for school se	no	....	no	10	Litchfield, Northfield	61
ne	no	....	....	....	Madison, East River	62
....	....	....	....	....	Madison	63
rary is next to public school, teachers have use of ooks for study and in the school without time mit, scholars use also periodicals, etc., in school. Children’s books especially provided	no	45	no	....	Manchester, South Manchester	64
ny of the school children and four of the five eachers take books from the library	no	....	no	....	Middlefield	65
achers take out any number of books for school se and send children who are old enough (14 yrs.) o get books and information on their own cards. The library is constantly in use by children of all ges	14	....	....	24	Middletown	66
considerable extent for reference by scholars in ublic school	14	50	no	100	Milford	67
....	12	small	no	....	Montville	68
ne directly	....	....	....	....	Morris, East Morris	69
is quite extensively used by the teachers as they ave each six cards on which to draw and the children draw a great many books, having an extra ard if the librarian and teacher approve	no	....	no	....	Naugatuck	70
hirty public school teachers are allowed one subscription, drawing two books for use of children. Reference books much used by high school pupils	no	....	no	116	New Britain	71
ry largely, and some by school children	no	25	no	200	New Canaan	72
a considerable extent by both. Teachers may ave out five extra books for school purposes	no	30	yes	400	New Haven, Public	73
here is no official connection between the library and the schools, but many teachers and school children are among our members	no	10	no	74	New Haven	74
a very large extent	12	....	no	80	New London	75
he library is largely used by school children and a number of teachers. By application to the executive committee teachers are allowed the privilege of drawing more than one book	no	....	no	....	New Milford	76
ot used	no	....	....	....	New Milford, Northville	77
sed to quite a large extent by the children	no	....	no	....	Newington	78
....	no	33	no	....	Newtown	79
eachers are allowed to take any number of books needed for school purposes and keep till end of term. Three branch libraries have been started in outlying schoolhouses and have proved a success thus far	no	....	no	....	Norfolk	80
o quite an extent	no	5	no	a few	North Canaan	81
....	10	20	no	....	North Haven	82
....	no	20	no	....	Norwalk	83

TABLE XLVII — REPORT

	Town	Expenses				Is there a Library Building		
		Income and how Derived	Amount expended for salaries	Amount expended for books	Amount expended for periodicals	Building	Cost	Name of Donor
84	Norwalk, South Norwalk	$1,348 — $1,200 ½ mill tax on city property; $100 fines, etc.; $48 subscriptions at $1 from non-residents	438.45	316.90	158.40	yes	8,000	Library and Readin Room Corporation
85	Norwich	$6,872.83 — From invested funds, $2,178.15; town appropriation, $4,420.11; fines, etc., $274.57	3,429.66	1,063.64	129.18	yes	22,000	Joseph Otis and nu merous citizens
86	Old Lyme	Voluntary subscriptions	nothing	125.00	....	yes	1,500	General subscription
87	Old Saybrook, Saybrook	Subscriptions, loan of books, and $100 from town	102.00	....	16.00	yes	3,000	....
88	Oxford	None	....	....	....	.....	....	....
89	Plainfield	Fees $1.00, and entertainments	10.00	16.92	8.35	no	....	....
90	Plainfield, Central Village	About $25 yearly from membership fees	nothing	24.00	nothing	no	....	....
91	Plainville	From town, fines, and $50 from Strong estate	75.00	....	....	no	....	....
92	Plymouth, Terryville	$39.05 — Tax on shareholders, subscription fees on non-shareholders, fines, etc.	....	21.69	....	.....	....	....
93	Plymouth	Fund of $3,300	50.00	225.00	....	no	....	....
94	Pomfret	Subscriptions, dues, and fines	50.00	125.00	....	no	....	....
95	Pomfret, Abington	....	5.00	....	....	yes	1,000	Built by subscription
96	Portland	$322.35 — $300 from town; $22.35 from fines	none	86.00	none	yes	3,500	H. H. Buck
97	Prospect	....	....	20.00	....	no	....	....
98	Putnam	From town	100.00	....	....	no	....	....
99	Ridgefield	By subscription	240.00	....	....	yes	....	P. C. Lounsbury
100	Rocky Hill	Subscriptions and dues	6.50	50.00	6.60	no	....	....
101	Roxbury	Subscriptions	nothing	....	7.00	no	....	....
102	Salisbury	$560.25—$500 from founders; $20 from fines; $40.25 periodicals	300.00	11.00	40.25	yes	25,000	Heirs of J. and N. C Scoville
103	Seymour	$425 — $300 from town ($200 for library, $100 for reading-room); $50 donations; $75 entertainments	....	....	....	no	....	Use of one story of tow building, warmed b steam and lighted b electricity, is give library and reading-room
104	Sharon, Ellsworth	From fund of $500	....	30.00	....	no	....	In church building
105	Sharon	$700 — Subscriptions and gifts of Mrs. Hotchkiss	300.00	40.00	....	yes	....	Mrs. B. B. Hotchkiss
106	Simsbury	$300 from a fund given by A. R. Eno	....	300.00	....	yes	10,000	A. R. Eno
107	Stafford, Stafford Springs	Personal contributions and entertainments	50.00	45.00	othing	no	....	....
108	Stamford	$2,384.09 — Rents, $838.33; interest, $1,224.26; subscriptions, $282.50; fines, $39	966.84	378.65	....	yes	10,000	J. D. Ferguson
109	Stonington	$700 — No stated income; secure $60 from fines and voting members' fee; the rest by solicitation or entertainments	200.00	200.00	30.00	no	....	....
110	Stratford	Subscriptions and income of funds	....	....	....	yes	30,000	Birdseye Blakeman
111	Suffield	....	....	....	....	.....	....	....

F LIBRARIES, 1895-6 — *Continued*

To what extent is the Library used by School Children and Teachers	Age limit for children	Percentage of children's books circulated	Duplicate copies of books for use in public schools	Volumes on education	Town	
here is a good school library. There are no special relations between this library and the schools. Teachers may borrow several books on one card	12	....	no	....	Norwalk, South Norwalk	84
rgely. Teachers are allowed six books at a time for school use, and the reading-room is much used by pupils	no	24	yes	250	Norwich	85
....	....	....	....	....	Old Lyme	86
....	....	....	....	....	Old Saybrook, Saybrook	87
ree to any wishing to draw	no	few	no	no	Oxford	88
me fifteen children take books regularly, others occasionally for reference	10	24	....	no	Plainfield	89
....	....	10	....	....	Plainfield, Central Village	90
he library is well patronized by school children, also by teachers for school use	12	20	yes	....	Plainville	91
....	no	25	no	....	Plymouth, Terryville	92
he teachers have free access to library, and take some care in recommending books to children	no	25	no	....	Plymouth	93
ibrary offered one-half price to scholars and free to teachers; seldom used	no	....	no	10	Pomfret	94
ibrary is not used	....	....	....	....	Pomfret, Abington	95
ot particularly at present owing to lack of facilities and books: soon as new building is completed efforts will be made to have scholars use it more extensively	14	10	no	none	Portland	96
onsiderable	no	....	yes	....	Prospect	97
sed somewhat	14	....	....	....	Putnam	98
sed very largely by pupils and teachers	no	....	no	....	Ridgefield	99
....	....	....	....	....	Rocky Hill	100
o connection	....	....	....	....	Roxbury	101
o quite an extent, especially reading-room and reference alcove; school cards are furnished teachers whenever desired	no	25	no	....	Salisbury	102
....	12	....	no	....	Seymour	103
erritory rural. Only two teachers, about 25 to 30 pupils, among whom the library circulates not freely	no	2.3	....	....	Sharon, Ellsworth	104
ll of the teachers use the library, 75 per cent. of village pupils use library	no	25	no	....	Sharon	105
sed by a good number of teachers, but not by many scholars, except in immediate vicinity of library	10	....	no	....	Simsbury	106
o some extent by the children, but not largely by the teachers as they have a very good school library	no	29	no	....	Stafford, Stafford Springs	107
pecial tickets issued free to teachers on which several books can be drawn at a time	no	15	no	....	Stamford	108
he library is used quite a good deal by school children and teachers	12	....	no	few	Stonington	109
....	....	....	....	....	Stratford	110
....	....	....	....	....	Suffield	111

TABLE XLVII — REPOR

	Town	Expenses				Is there a Library Building		
		Income and how Derived	Amount expended for salaries	Amount expended for books	Amount expended for periodicals	Building	Cost	Name of Donor
112	Thomaston	From fund and $418 from fair	150.00	....	....	no	....	....
113	Thompson, New Boston	Entertainments	9.00	....	....	no	....	Kept in private res dence
114	Torrington	$800 — Subscription fees and gifts	225.00	200.00	25.00	no	....	Given use of buildin
115	Union	$20 annual appropriation of town	12.00	8.00	....	no	....	....
116	Vernon, Talcottville	Contributed by Talcott Bros.	100.00	23.22	7.30	yes	10,000	Talcott Brothers
117	Wallingford	Subscriptions and entertainments	262.00	95.75	95.40	no	....	....
118	Washington	$154.83 — Subscriptions, $104.82; gifts, $50.01	90.25	40.00	....	no	....	....
119	Waterbury	Income from Bronson fund, $12,171 59	5,566.76	2,347.71	283.94	yes	65,000	Bronson income fro fund
120	Watertown	$1,100 from fund of $20,000	490.00	431.00	70.80	yes	16,000	Benjamin DeForest
121	Westbrook	From town	....	....	7.50	no	....	In town hall
122	West Hartford	....	180.00	67.25	30.00	no	....	The library is in room built in th Cong. church
123	Westport	$300	100.00	30.00	65.00	no	....	....
124	Wethersfield	$380 — $300 from town; $50 interest on bequest; $30 fines	90.00	80.00	given	no	....	....
125	Wilton	$249.24 — Entertainments, $167.47; dues and fines, $36.77; donations, $25; life members, $20	24.00	154.13	....	.....	....	....
126	Winchester, West Winsted	About $918 derived from fund of $6,000, sale of tickets, and fines, and special subscriptions	310.00	227.50	56.29	no	....	....
127	Windham, Willimantic	From Linen Company	364.00	100.00	59.10	yes	....	Dunham
128	Windham, Willimantic	Annual appropriation of $500 from city of Willimantic	100.00	251.96	12.00	no	....	....
129	Windsor	Entertainments and subscriptions	36.00	....	....	no	....	....
130	Windsor Locks	Rental of books	204.00	....	43.00	no	....	....
131	Woodbury	By entertainments	nothing	100.00	....	no	....	....
132	Woodstock	Entertainments and subscriptions	15.00	50.00	....	no	....	....
133	Woodstock, West Woodstock	Dues paid by members	....	....	....	no	....	....

OF LIBRARIES, 1895–6 — *Concluded*

To what extent is the Library used by School Children and Teachers	Age limit for children	Percentage of children's books circulated	Duplicate copies of books for use in public schools	Volumes on education	Town	
Yes, to a great extent; each session teachers call for books, frequently 50 or more children	10	....	....	....	Thomaston	112
Not at all	....	....	....	....	Thompson, New Boston	113
....	no	28	no	37	Torrington	114
To a considerable extent, teachers may draw ten books at a time for use in school	14	45	yes	....	Union	115
....	no	....	....	....	Vernon, Talcottville	116
Cards are given to teachers, as many as needed, at half price	no	22	no	....	Wallingford	117
Teachers may draw books without charge for use in schoolroom	no	6	no	....	Washington	118
Teachers in the schools, public and private, are allowed each six extra cards on which they can draw any books in the circulating library that relate to the branches being taught in their respective schools	no	....	....	....	Waterbury	119
Eleven out of thirteen teachers have usually six volumes at one time. Many of the children have cards of their own	no	....	....	20	Watertown	120
None whatever	....	....	....	....	Westbrook	121
Very little for general reading	10	....	no	....	West Hartford	122
....	no	5	....	100	Westport	123
Each school has a card and may take six books at a time. Teachers are using library more and more for school work	8	....	no	....	Wethersfield	124
A considerable extent	no	....	....	....	Wilton	125
The public school nearest the library avails itself of special terms, taking out books for the schoolrooms and pupils such as are members use reference books in the library	no	11	no	....	Winchester, West Winsted	126
Largely	8	50	....	....	Windham, Willimantic	127
Used largely by teachers and scholars	12	33	no	....	Windham, Willimantic	128
The books are used to a great extent by teachers and children	12	....	no	....	Windsor	129
By very few	no	small	....	....	Windsor Locks	130
Library used to limited extent by teachers and pupils; books are not to date	no	....	no	....	Woodbury	131
Being in the academy it is used much by academy pupils	no	small	no	....	Woodstock	132
....	no	....	no	....	Woodstock, West Woodstock	133

TABLE XLVIII—REPOR

	Town	Is there a Reading-room		Number o			
		Reading-room	Days and Hours of Opening	1 Daily	2 Weekly	3 Monthly	Others no included i 1, 2, and 3
1	Andover						
2	Ashford	no					
3	Berlin	yes	Wednesdays, 3–5, 7–9 P.M.		6	7	1
4	Berlin, East Berlin	no					
5	Bethlehem						
6	Bolton	no					
7	Branford	yes		50[1]			
8	Bridgeport	yes	Daily, 9 A.M.–9.30 P.M.; Sundays, 1–9 P.M.; Holidays, 9 A.M.–9 P.M.	179[1]			
9	Bristol	yes	Daily, 9 A.M.–9 P. M.	8	24	19	2
10	Brooklyn	no					
11	Canaan, Falls Village	yes	Mondays, Wednesdays, and Saturdays, 2–5, 6–9 P.M.		6	6	
12	Chatham, Middle Haddam	yes	Evenings, and Saturdays, 3–5 P.M.	2	4	1	many donated
13	Cheshire						
14	Chester						
15	Clinton	no					
16	Colchester	yes	Evenings; Wednesdays and Saturdays, afternoon	12			
17	Columbia						
18	Cornwall						
19	Coventry	no					
20	Coventry, South Coventry						
21	Cromwell	yes	Every evening	2	2	1	5
22	Danbury	yes	10 A.M.–9 P.M.	5	12	18	2
23	Durham	no					
24	Eastford	no					
25	East Haddam, Moodus	yes	Daily, 1–9 P.M.	5	20	16	1
26	East Hartford	yes	Tuesdays, Thursdays, and Saturdays, 2–5, 7–9 P.M.	0	7	18	
27	East Lyme, Niantic						
28	East Windsor	yes	Tuesdays, Thursdays, and Saturdays, 7–9 P.M.	1	6		
29	Ellington	no					
30	Enfield	no					
31	Essex, Centerbrook	no					
32	Essex	no					
33	Essex, Ivoryton						
34	Fairfield						
35	Fairfield, Mill Plain	no					

[1] Includes daily, weekly, monthly, etc.

F LIBRARIES, 1895–6 — *Continued*

ERIODICALS							
Number of eriodicals for children in-uded in 1, 2, and 3	Statistics as to number of readers	Amount appropriated for Reading-room	Special reference library	Number of volumes	Name of librarian or officer reporting	Town	
					Edward M. Yeomans	Andover	1
			no		Peter Platt	Ashford	2
2			no		Ruth Galpin, Asst. Librarian	Berlin	3
			no		Georgiana A. Kelsey	Berlin, East Berlin	4
					Mrs. Nehemiah L. Bloss	Bethlehem	5
			no		Adelia N. Loomis	Bolton	6
					Mr. A. W. Tyler	Branford	7
					Mrs. Agnes Hills	Bridgeport	8
3	1,500	$158.56			C. L. Wooding	Bristol	9
					J. Sprague Bard	Brooklyn	10
2					C. Belle Maltbie	Canaan, Falls Village	11
	not well patronized	10.00	no		G. N. Lawson, Secretary and Treasurer	Chatham, Middle Haddam	12
					Mary E. Baldwin	Cheshire	13
					Emma G. Leete	Chester	14
			yes		John A. Stanton	Clinton	15
					Mrs. Ida Wagner	Colchester	16
					Alanson H. Fox	Columbia	17
					Mary Whitney	Cornwall	18
					Hattie E. Gilbert	Coventry	19
					Sadie C. Wood	Coventry, South Coventry	20
3		by donation; no special sum	no		Sarah M. Savage	Cromwell	21
2			yes	1,530	Mrs. C. H. Sanford	Danbury	22
			no		Mary J. Camp	Durham	23
			no		Mrs. S. J. Walker	Eastford	24
3		100.00	yes	110	Nellie E. Chaffee	East Haddam, Moodus	25
3		45.00	no		Jessie Warren Hayden	East Hartford	26
					Mrs. M. E. Bond Dart	East Lyme, Niantic	27
			no		Rev. A. H. Wright	East Windsor	28
			no		Lizzie L. Kibbe	Ellington	29
			no		F. J. Sheldon, Secretary	Enfield	30
			no		Jennie I. Norton	Essex, Centerbrook	31
			no		Mrs. M. L. Bryan	Essex	32
					Mrs. S. L. Cheney	Essex, Ivoryton	33
					F. E. B. Nichols	Fairfield	34
					Mrs. Burr Perry	Fairfield, Mill Plain	35

TABLE XLVIII — REPOR

	Town	Is there a Reading-room		Number o			
		Reading-room	Days and Hours of Opening	1 Daily	2 Weekly	3 Monthly	Others no included i 1, 2, and
36	Fairfield, Southport	yes	Daily, 8.30 A.M.–10 P.M.	20	30	48	9
37	Farmington	yes	Saturdays, 2.30–5, 6.30–9	5	15		4
38	Franklin	no					
39	Glastonbury	no					
40	Granby, Falls Village	yes	Wednesdays and Saturdays, 2–5, 6–9 P.M.	1	8	11	1
41	Granby						
42	Granby, West Granby	yes	Sundays and Wednesdays, evening		5		
43	Greenwich	yes		2	3	7	
44	Greenwich, Pemberwick	yes	Daily, 9–12 A.M.; 2–6, 7–9 P.M.	2	19	9	
45	Griswold	no					
46	Griswold, Jewett City	yes	Tuesdays, Thursdays, and Saturdays, 2–8 P.M.		9	18	
47	Groton	no				12	
48	Groton, Mystic	no			2		
49	Guilford	no					
50	Haddam						
51	Hampton						
52	Hartford, Public	yes	Daily, week days, 8 A.M.–10 P.M.; Sundays, 1–7.30 P.M.	20	40	60	40
53	Hartford	yes	Daily, 9.30–5.30	none	10	32	33
54	Hebron	no					
55	Huntington, Shelton	yes	Daily, 1–5, 6–9 P.M.	4			
56	Killingly, Danielson	yes	Evenings, 6–9; Saturdays, 2–5 P.M.	3	9	5	
57	Lebanon						
58	Ledyard	no					
59	Litchfield	no					
60	Litchfield	no					
61	Litchfield, Northfield	no					
62	Madison, East River	yes	Daily, 2.30–5, 6–9 P.M.	3	3	4	
63	Madison						
64	Manchester, South Manchester	yes	Daily, including Sundays, 3–6, 7–9 P.M.	6	18	20	1
65	Middlefield	no					
66	Middletown	yes	Daily, 3–6, 7–9 P.M.	3	11	17	
67	Milford	yes	Daily, 9 A.M.–1 P.M.; 3–5, 7–9 P.M.	5	13	12	7
68	Montville	yes	Saturdays, 2–4 P.M.		2	18	
69	Morris, East Morris	no					
70	Naugatuck	yes	Mondays, Wednesdays, and Saturdays, 3–5, 7–9 P.M.		2	21	

)F LIBRARIES, 1895–6 — *Continued*

ERIODICALS							
Number of eriodicals for children included in 1, 2, and 3	Statistics as to number of readers	Amount appropriated for reading-room	Special reference library	Number of volumes	Name of librarian or officer reporting	TOWN	
3	17,481 visitors during year		[1]		Josephine S. Heydrick	Fairfield, Southport	36
	3,800 in year; av. 76 p. day		no		Mrs. F. H. Root	Farmington	37
					Henry E. Hart	Franklin	38
			no		J. H. Hutchins	Glastonbury	39
1			yes	107	George S. Goddard	Granby, Falls Village	40
					Mrs. A. E. Edwards	Granby	41
			no		Mrs. Porter Reed	Granby, West Granby	42
4	about 10 a day	20.00	no		Mrs. H. E. Marshall	Greenwich	43
3	75 daily				Mary M. Miller	Greenwich, Pemberwick	44
					Charles F. Morgan	Griswold	45
3	60 daily		no		Bessie J. Fanning	Griswold, Jewett City	46
1			no		Abbie M. Clark	Groton	47
					A. A. Murphy	Groton, Mystic	48
			no		E. Jennie Knowles	Guilford	49
			no		E. E. Lewis, President	Haddam	50
					W. H. Burnham	Hampton	51
3	59,498	564.92	yes	1,000	Caroline M. Hewins	Hartford, Public	52
none		none			Frank B. Gay	Hartford	53
			no		Susan B. Pendleton	Hebron	54
			yes	100	J. Tomlinson, Secretary and Treasurer	Huntington, Shelton	55
2			yes		Isebell Kerr	Killingly, Danielson	56
					John Clark	Lebanon	57
			no		Harriet J. Gray	Ledyard	58
					Mrs. Mary J. Buell	Litchfield	59
					Mrs. Mary J. Buell	Litchfield	60
			no		Levi S. Wooster	Litchfield, Northfield	61
1					Carrie E. Leete	Madison, East River	62
					Mary E. Redfield, Chairman Book Committee	Madison	63
2		125.00	yes	50	Mrs. Mary J. Easton	Manchester, South Manchester	64
			no		L. A. Rockwell	Middlefield	65
2			no		Laura F. Philbrook	Middletown	66
3	75 daily	100.00	yes		W. S. Chase	Milford	67
	about 60		no		Lucy R. Parish	Montville	68
					George H. Johnson	Morris, East Morris	69
none	well patronized		yes	100	Ellen Spencer	Naugatuck	70

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[1] We are making a specialty of Genealogy and Americana, but the collection is scarcely large enough to justify calling it a special reference library.

TABLE XLVIII — REPORT

	Town	Is there a Reading-room		Number o			
		Reading-room	Days and Hours of Opening	1 Daily	2 Weekly	3 Monthly	Others not included in 1, 2, and 3
71	New Britain	yes	Week days, 9–12.30, 2–6, 7–9 P.M.; Sundays, 2–6 P.M.	13	34	45	15
72	New Canaan						
73	New Haven (Public)	yes	Week days, 9 A.M.–9 P.M.; Sundays, 1–6 P.M.; closed Sundays from June–Sept.	28	40	100	15
74	New Haven	yes	Daily, 8 A.M.–9 P.M.; legal holidays, 9 A.M.–6 P.M.	18	24	24	1
75	New London	yes	Daily, 10 A.M.–1, 2–6 P.M.; evenings, Tuesday and Saturday to 9 P.M.		13	43	5
76	New Milford	yes	Tuesdays, Thursdays, and Saturdays, 2–5, 7–8 P.M.		2	2	
77	New Milford, Northville	no					
78	Newington	yes			2	6	
79	Newtown						
80	Norfolk	yes	Daily, 9 A.M.–9 P.M.	7	23	17	
81	North Canaan	no					
82	North Haven	yes	Tuesdays and Saturdays, 2–4.30, 7–9 P.M.		3	5	
83	Norwalk	yes	Daily, 2–6 P.M.				
84	Norwalk, South Norwalk	yes	Daily, 9.30 A.M.–9 P.M.	7	24	27	
85	Norwich	yes	Week days, 9.30 A.M.–9 P.M.; Sundays. 2–6 P.M.	9	19	23	
86	Old Lyme						
87	Old Saybrook, Saybrook						
88	Oxford	no					
89	Plainfield	no					
90	Plainfield, Central Village	no					
91	Plainville	no					
92	Plymouth, Terryville						
93	Plymouth	yes	Two evenings			12	
94	Pomfret	no					
95	Pomfret, Abington	no					
96	Portland	no					
97	Prospect	no					
98	Putnam	no					
99	Ridgefield	no					
100	Rocky Hill	no					
101	Roxbury						
102	Salisbury	yes	Daily, 2–5, 7–9 P.M.		7	6	1
103	Seymour	yes	Tuesdays, Thursdays, and Fridays, 7–9 P.M.; Saturdays, 4–6, 7–9 P.M.	5	11	11	1
104	Sharon, Ellsworth	no					
105	Sharon	yes		2	6	7	1
106	Simsbury	no					

F LIBRARIES, 1895-6 — *Continued*

RIODICALS							
Number of riodicals for hildren in-ded in 1, 2, and 3	Statistics as to number of readers	Amount appropriated for reading-room	Special reference library	Number of volumes	Name of librarian or officer reporting	TOWN	
2	Sunday average, 43		yes	1,000	Anna G. Rockwell	New Britain	71
					Martha Silliman	New Canaan	72
6			yes	500	Willis K. Stetson	New Haven, Public	73
4			no		Stella Williams	New Haven	74
3			yes		Mary A. Richardson	New London	75
					Elizabeth H. Noble	New Milford	76
			no		Mrs. Smith Lyon	New Milford, Northville	77
			no		Alfred B. Fish, Secretary	Newington	78
					Abbie L. Peck	Newtown	79
4			yes	267	Henry Hudson Eddy	Norfolk	80
			yes	25	Mrs. Sarah J. Hamm	North Canaan	81
2			no		Harriett D. Andrews	North Haven	82
			no		Lawrence P. Mott	Norwalk	83
3	20,000	158.40	yes	50	Angeline Scott	Norwalk, South Norwalk	84
3			yes		Jonathan Trumbull	Norwich	85
			no		J. G. Perkins	Old Lyme	86
					C. A. Clark	Old Saybrook, Saybrook	87
			no		W. W. Hughes	Oxford	88
					Susie F. Ashley	Plainfield	89
			no		Mary E. Cutler	Plainfield, Central Village	90
					Grace Matthews	Plainville	91
					A. S. Gaylord, cretary	Plymouth, Terryville	92
none		30.00	yes	40	A. S. Beardsley, President	Plymouth	93
					Miss Louise C. Hoppin	Pomfret	94
					Jessie E. Dennis	Pomfret, Abington	95
			no		W. H. Edwards, Secretary	Portland	96
					Mrs. S. A. Talmadge	Prospect	97
					Alice G. Johnson	Putnam	98
					Mrs. W. S. Todd	Ridgefield	99
			no		Adelaide W. Wright	Rocky Hill	100
					Edward W. Preston	Roxbury	101
3	12 daily	40.25	yes	104	Della E. Parsons	Salisbury	102
2	20 daily	65.00	yes		Iva E. Sharpe	Seymour	103
					Rev. Evan Evans	Sharon, Ellsworth	104
3			yes		Flora A. Ryan	Sharon	105
			no		Eliza McRoy	Simsbury	106

TABLE XLVIII—REPORT

	Town	Is there a Reading-room		Number of			
		Reading-room	Days and Hours of Opening	1 Daily	2 Weekly	3 Monthly	Others not included in 1, 2, and 3
107	Stafford, Stafford Springs	no	...	...	...	...	...
108	Stamford	yes	Daily, 9–12 A.M.; 2.30–5.30, 7–10 P.M.	5	16	25	2
109	Stonington	yes	Daily, 9 A.M.–9 P.M.	1	7	3	...
110	Stratford	yes	Daily, 6.30–8.30 P.M.	...	...	...	...
111	Suffield	yes	Daily, 2–6; 7–9 P.M.	4	10	11	3
112	Thomaston	yes	Daily	...	...	...	...
113	Thompson, New Boston	...	...	...	...	...	...
114	Torrington	no	...	...	...	...	...
115	Union	no	...	...	...	...	...
116	Vernon, Talcottville	no	...	...	...	...	...
117	Wallingford	yes	Tuesdays, Thursdays, and Saturdays, 2–5.45 P.M.; evenings, 6.30–9.30	5	4	21	...
118	Washington	yes	Winter, Tuesdays, Thursdays, and Saturdays, 2.30–5.30 P.M.; Saturday evening, 7–9. Summer, daily, 2.30–5.30 P.M.; Saturday evening, 7–9	...	7	8	...
119	Waterbury	yes	Daily, 9 A.M.–9 P.M.	20	23	40	7
120	Watertown	yes	Tuesdays and Fridays, 2–8.30 P.M.	...	8	18	...
121	Westbrook	no	...	...	...	...	...
122	West Hartford	yes	Summer, daily, 4–9 P.M. Winter, daily, 3–8 P.M.	3	8	5	...
123	Westport	yes	Wednesdays and Saturdays, afternoon; every evening, 7–9	2	7	8	...
124	Wethersfield	yes	Wednesdays, 2.30–4.30 P.M.; Mondays and Saturdays, 7–9 P.M.	...	2	14	...
125	Wilton	no	...	...	...	...	...
126	Winchester, West Winsted	yes	Daily, 1.15–5, 7–9 P.M.	1	2	10	2
127	Windham, Willimantic	yes	Daily, 12 M.–9 P.M.	3	6	8	...
128	Windham, Willimantic	no	...	...	...	...	...
129	Windsor	...	...	...	...	...	...
130	Windsor Locks	yes	Daily, 9 A.M.–9 P.M.	5	10	4	...
131	Woodbury	no	...	...	...	...	...
132	Woodstock	no	...	...	...	...	...
133	Woodstock, West Woodstock	...	...	...	...	...	...

LIBRARIES, 1895-6—*Concluded*

IODICALS							
umber of iodicals for ildren in- ded in 1, 2, and 3	Statistics as to number of readers	Amount appropriated for reading-room	Special reference library	Number of volumes	Name of librarian or officer reporting	Town	
...	...	...	...	...	Mrs. S. A. Spellman	Stafford, Stafford Springs	107
3	...	...	...	...	A. N. Paradise	Stamford	108
3	20 daily	...	no	...	Rev. Charles J. Hill, President	Stonington	109
...	...	...	...	...	Rev. Joel S. Ives, President	Stratford	110
3	wellpatronized	supported by gifts and special effort	no	...	Alena F. Owen, Treasurer	Suffield	111
...	...	...	yes	50	Hattie A. Norton	Thomaston	112
...	...	...	...	...	Mary H. Jordan	Thompson, New Boston	113
...	...	...	no	...	Louise T. Mason	Torrington	114
...	...	...	no	...	George Towne	Union	115
...	...	...	no	...	David Ferguson	Vernon, Talcottville	116
2	100 daily	...	no	...	Emma Lewis	Wallingford	117
3	...	...	no	...	Wm. G. Brinsmade	Washington	118
...	...	...	yes	13,555	H. F. Bassett	Waterbury	119
4	...	...	...	...	Nancy E. Bronson	Watertown	120
...	...	...	no	...	Caroline E. Moore	Westbrook	121
2	...	...	no	...	Elizabeth S. Elmer	West Hartford	122
none	15 daily	...	...	...	Frances A. Gray	Westport	123
2	...	no appropriation	no	...	Katherine C. Robbins	Wethersfield	124
...	...	...	...	...	Rev. William E. Hooker, Secretary	Wilton	125
2	...	...	no	...	Louise M. Carrington	Winchester, West Winsted	126
...	...	...	no	...	J. A. Ford	Windham, Willimantic	127
...	...	...	...	...	A. Dell Carpenter	Windham, Willimantic	128
...	...	...	...	...	Grace M. Blake	Windsor	129
1	...	...	no	...	Mrs. C. J. Goodwill	Windsor Locks	130
...	...	...	...	...	Edward S. Boyd	Woodbury	131
...	...	...	...	...	L. B. Flynn	Woodstock	132
...	...	...	...	...	Ellen H. Newhall	Woodstock, West Woodstock	133

Women's Voting.

The following table gives the number of women voting on school matters at the town meeting in October, 1896:

Town.	Number of Women who Voted at town election in October, 1896.
HARTFORD COUNTY	
Hartford	..
Avon	..
Berlin	..
Bloomfield	..
Bristol	5
Burlington	..
Canton	21
East Granby	..
East Hartford	3
East Windsor	..
Enfield	14
Farmington	..
Glastonbury	21
Granby	..
Hartland	..
Manchester	20
Marlborough	..
New Britain	2
Newington	3
Plainville	116
Rocky Hill	5
Simsbury	22
Southington	29
South Windsor	..
Suffield	3
West Hartford	..
Wethersfield	6
Windsor	..
Windsor Locks	..
29 towns	270
NEW HAVEN COUNTY	
New Haven	..
Ansonia	..
Beacon Falls	..
Bethany	2
Branford	1
Cheshire	3
Derby	..
East Haven	..
Guilford	3
Hamden	1
Madison	5
Meriden	..
Middlebury	..
Milford	..
Naugatuck	..
North Branford	..
North Haven	1
Orange	..
Oxford	..
Prospect	..
Seymour	1
Southbury	..
Wallingford	9
Waterbury	..
Wolcott	..
Woodbridge	..
26 towns	26
NEW LONDON COUNTY	
New London	42
Norwich	13
Bozrah	..
Colchester	1
East Lyme	53
Franklin	2
Griswold	16
Groton	3
Lebanon	..
Ledyard	..
Lisbon	..
Lyme	3
Montville	14
North Stonington	..
Old Lyme	..
Preston	4
Salem	..
Sprague	4
Stonington	67
Voluntown	..
Waterford	..
21 towns	222
FAIRFIELD COUNTY	
Bridgeport	..
Danbury	51
Bethel	..
Brookfield	..
Darien	..
Easton	..
Fairfield	..
Greenwich	..
Huntington	..
Monroe	..
New Canaan	..
New Fairfield	..
Newtown	..
Norwalk	23
Redding	..
Ridgefield	..
Sherman	..
Stamford	4
Stratford	2
Trumbull	..
Weston	..
Westport	..
Wilton	..
23 towns	80
WINDHAM COUNTY	
Brooklyn	..
Ashford	..
Canterbury	5
Chaplin	..
Eastford	..
Hampton	7
Killingly	3
Plainfield	..
Pomfret	2
Putnam	6
Scotland	..
Sterling	..
Thompson	..
Windham	961
Woodstock	..
15 towns	984
LITCHFIELD COUNTY	
Litchfield	..
Barkhamsted	1
Bethlehem	..
Bridgewater	..
Canaan	1
Colebrook	..
Cornwall	..
Goshen	..
Harwinton	..
Kent	..
Morris	..
New Hartford	1
New Milford	..
Norfolk	..
North Canaan	..
Plymouth	..
Roxbury	..
Salisbury	..
Sharon	..
Thomaston	5
Torrington	..
Warren	..
Washington	..
Watertown	4
Winchester	2
Woodbury	57
26 towns	73

	Number of Women who Voted at town election in October, 1896.		Number of Women who Voted at town election in October, 1896.		Number of Women who Voted at town election in October, 1896.
MIDDLESEX COUNTY		Old Saybrook	..	Coventry	..
Middletown	..	Portland	..	Ellington	4
Haddam	..	Saybrook	..	Hebron	..
Chatham	12	Westbrook	..	Mansfield	..
Chester	..			Somers	..
Clinton	..	15 towns	25	Stafford	..
Cromwell	..			Union	..
Durham	..	TOLLAND COUNTY.		Vernon	3
East Haddam	13	Tolland	..	Willington	..
Essex	..	Andover	..		
Killingworth	..	Bolton	..	13 towns	7
Middlefield	..	Columbia	..		

SUMMARY BY COUNTIES

	Number of Women who Voted October, 1896.		Number of Women who Voted October, 1896.
Hartford	270	Litchfield	73
New Haven	26	Middlesex	25
New London	222	Tolland	7
Fairfield	80		
Windham	984	The State	2,687

SCHOOL ORGANIZATION AND ADMINISTRATION

There are in the state two distinct systems of school administration. One, the original town system, is distinguished by a single board of officers and a direct, efficient, and reasonable method of doing business.

The other, the district system, is distinguished by two independent sets of officers, the one hiring and paying teachers and caring for schoolhouses, and the other examining teachers and supervising the schools.

The charter districts with one exception, Waterbury, are modeled upon the town plan.

CLASS I — TOWN SYSTEM

All school business transacted in town meeting and schools managed by a single board called town school committee. Gen. Stat., Sec. 2196.

Andover	1888	Fairfield	1887	Putnam*	1896
Ansonia	1890	Franklin*	1896	Saybrook	1870
Beacon Falls	1892	Hamden	1894	Scotland	1895
Bethel	1888	Harwinton	1890	Seymour	1868
Branford	1867	Huntington	1894	Simsbury*	1896
Bridgeport	1876	Killingworth	1895	Southington	1893
Brooklyn	1895	Litchfield	1880	Stamford	1873
Chaplin	1891	Madison	1889	Thomaston	1875
Chester	1895	Meriden	1895	Torrington	1882

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* Voted consolidation in October, 1896.

Clinton	1869	Milford	1875	Trumbull	1894
Cornwall*	1896	New Britain	1873	Washington	1892
Cromwell	1895	New Canaan	1893	Westbrook	1894
Derby	1893	New London	1868	West Hartford	1887
East Lyme*	1896	New Milford	1893	Windham*	1896
Easton*	1896	Old Lyme*	1896	Windsor Locks	1866
East Windsor	1895	Old Saybrook	1873	Wolcott	1887
Enfield	1892	Plainville	1869	Woodbridge	1891
Essex	1870	Prospect	18	Woodbury*	1896

54 towns

CLASS II — DISTRICT SYSTEM

Hiring and paying teachers is in hands of district committee, but money generally furnished by town. Examination of teachers and visiting of schools is left to school visitors. There is no definite delimitation of duties and there is confusion of duties and action.

Ashford
Avon
Barkhamsted
Berlin
Bethany
Bethlehem
Bloomfield
Bolton
Bozrah
Bridgewater
Bristol
Brookfield
Burlington
Canaan
Canterbury
Canton
Chatham
Cheshire
Colchester
Colebrook
Columbia
Coventry
Danbury
Darien
Durham
Eastford
East Granby
East Haddam
East Hartford
East Haven
Ellington
Farmington
Glastonbury
Goshen
Granby
Greenwich
Griswold
Groton
Guilford
Haddam
Hampton
Hartford
Hartland
Hebron
Kent
Killingly
Lebanon
Ledyard
Lisbon
Lyme
Manchester
Mansfield
Marlborough
Middlebury
Middlefield
Middletown
Monroe
Montville
Morris
Naugatuck
New Fairfield
New Hartford
New Haven
(South District)
Newington
Newtown
Norfolk
North Branford
North Canaan
North Haven
North Stonington
Norwalk
Norwich
Orange
Oxford
Plainfield
Plymouth
Pomfret
Portland
Preston
Redding
Ridgefield
Rocky Hill
Roxbury
Salem
Salisbury
Sharon
Sherman
Somers
Southbury
South Windsor
Sprague
Stafford
Sterling
Stonington
Stratford
Suffield
Thompson
Tolland
Union
Vernon
Voluntown
Wallingford
Warren
Waterbury
Waterford
Watertown
Weston
Westport
Wethersfield
Willington
Wilton
Winchester
Windsor
Woodstock

114 towns

CLASS III

Districts organized under law of 1855, Gen. Stat., Sec. 2130—

Middletown City District
New Haven " "
" " Westville District
Norwich Central District
" West Chelsea
" Town St. District

CLASS IV — SPECIAL CHARTERS

Manchester, Ninth District, Special Acts, 1895, p. 278.
Norwich, Falls District, Special Acts, 1895, p. 31.
Waterbury, Center District, Special Acts, 1880, p. 12.

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* Voted consolidation in October, 1896.

Town Deposit Fund

The following resolution was passed by the General Assembly of 1895 :

> *Resolved by this Assembly:* That the comptroller be and he is hereby instructed to inquire of the several towns of the state as to the condition of the town deposit fund in the following particulars, to wit : The amount of the fund in the possession of the town, the manner of its investment, the amount of income derived therefrom, and whether the income is applied as required by statute, and to give the result of his inquiries in his next annual report.

In the year 1887 a careful inquiry into the condition of the fund was made and the result published in the report of 1888.

As the information then obtained was at hand, inquiries necessary to bring the facts to date were instituted, and the present condition of the fund is set out below. So far as the facts can be tabulated they are as follows :

HARTFORD COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
Hartford,	$25,141.43	$23,481.43	$23,481.43	Notes of town of Hartford.
West Hartford,	....	1,660.00	1,660.00	Notes of town of West Hartford.
Avon,	2,632.54	2,338.04	2,770.04	Loaned to town of Avon, $1,570.04; in bank stock, $1,200.
Berlin,	7,800.04	2,941.94	2,941.94	Loaned to town of Berlin.
New Britain,	....	2,958.42	2,958.42	Loaned to town of New Britain.
Bristol,	4,384.16	4,384.16	4,384.16	Mortgage notes, $2,982; accepted town and school orders, $1,402.16.
Burlington,	3,341.41	3,341.41	3,341.24	Secured notes, $689.24; town orders $2,540; Bristol Savings Bank, $112.
Canton,	3,690.71	3,690.71	3,690.71	Loaned to town of Canton.
East Hartford,	5,745.48	5,745.38	5,745.38	Loaned to town of East Hartford.
East Windsor,	9,081.64	4,721.98	4,721.98	Loaned to town of East Windsor $4,521.98; to individuals, $200.00.
South Windsor,	....	4,209.21	4,059.21	Loaned to town of South Windsor.
Enfield,	5,467.99	5,484.56	5,484.56	Loaned to town of Enfield.
Farmington,	4,882.41	4,882.41	4,882.41	Loaned to town of Farmington.
Plainville,	....	new town.	no fund.	
Glastonbury,	7,653.63	7,653.63	7,653.63	Loaned to individuals.
Granby,	7,019.26	4,935.42	4,935.42	Loaned to town of Granby.
East Granby,	....	2,083.84	2,183.84	Loaned to town of East Granby.
Hartland,	3,135.94	3,135.94	3,139.94	Loaned to town of Hartland, $2,968.94; $167 invested in mortgage.
Manchester,	4,047.70	4,442.14	4,442.14	Loaned on mortgage, $4,422.14; cash on hand, $20.00.
Marlborough,	1,808.12	1,808.12	1,808.12	Loaned by town.
Simsbury,	5,704.27	3,158.00	3,158.00	Loaned to individuals, $2,100.00; cash in savings bank, $1,058.00.
Southington,	3,736.02	4,736.04	4,736.04	In b'k stk., $4,225; in sav. b'k, $386.04; on mortgage, $100; loaned to town, $25.
Suffield,	6.908.82	7,294.86	7,294.86	Loaned to town of Suffield, $5,494.86; on mortgage, $1,800.00.
Wethersfield,	6,792.59	3,577.04	3,577.04	In state treasury.
Rocky Hill,	2,953.20	2,953.20	2,953.20	Loaned to town of Rocky Hill.
Newington,	....	1,496.24	1,500.00	In savings bank.
Windsor,	5,231.71	3,331.64	3,331.64	In mortgages on real estate.
Bloomfield,	3,038.34	4,027.89	4,027.89	In mortgage on real estate, $1,512.65; in town treasury, $2,515.24.
Windsor Locks,	....	1,825.00	2,109.88	Loaned on real estate, $265.00; deposited in bank, $1,844.88.
Totals,	$130,197.41	$126,298.65	$126,973.12	

NEW HAVEN COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
New Haven,	$27,424.67	$29,690.90	$29,660.90	In mortgage notes, $19,550.00; loaned to town of New Haven, $10,110.90.
Branford,	3,184.73	3,184.73	3,184.73	Invested in public buildings.
No. Branford,	2,804.64	2,804.64	2,804.64	In state treasury.
Cheshire,	4,571.63	4,574.25	4,574.25	$3,574.50 loaned to town; $999.75 in savings bank.
Derby,	5,806.46	4,018.30	1,504.92	Loaned to town of Derby.
Seymour,	....	1,826.16	1,826.00	Loaned to town of Seymour.
Ansonia,	....	....	2,455.38	In almshouse property.
East Haven,	3,156.49	937.50	937.50	$6.50 loaned on mortgage; $287.50 loaned to town of East Haven.
Guilford,	6,020.19	6,020.19	6,020.19	$4,520.19 loaned to town; $1,500 loaned to individuals.
Hamden,	4,278.85	4,278.85	4,278.85	Loaned to town of Hamden.
Madison,	4,646.13	4,646.13	4,646.13	Loaned to town of Madison, $2,000.00; notes secured by mortgage, $2,646.13.
Meriden,	4,386.72	4,386.72	4,554.72	Loaned to town of Meriden, $3,086.15; to individ's, $800.57; cash on hand, $668.
Middlebury,	2,095.77	2,100.00	2,100.00	Loaned to town of Middlebury, and on notes.
Milford,	5,794.17	3,394.17	3,194.17	$3,053.17 has been used to pay cur. exp's of town; in a secured note, $141.
No. Haven,	3,292.62	3,292.62	3,292.20	Loaned to town of No. Haven.
Orange,	4,592.92	3,443.80	3,443.80	Loaned to town of Orange, $3,319.80; note of individual, $124.
Oxford,	4,527.98	4,169.00	4,169.00	Loaned to town in part; most of rem'nder in mortg's $110, cannot be col.
Prospect,	1,671.99	1,671.99	1,671.99	Loaned to town of Prospect.
Southbury,	3,998.91	3,998.91	3,998.91	In state treasury.
Wallingford,	6,210.23	6,210.23	6,210.23	Loaned to town of Wallingford.
Waterbury,	7,884.78	5,977.51	6,027.51	Loaned to town, $2,956.79; in savings banks, $3,020.72; in mortgage, $50.
Naugatuck,	....	1,240.00	1,240.00	Loaned to town.
Wolcott,	2,165.11	2,165.11	2,165.11	In promissory notes secured by mortgage on real estate.
Woodbridge,	2,493.86	2,493,86	2,493.86	All loaned to town of Woodbridge.
Bethany,	2,876.38	1,626.72	1,626.72	$500 in savings bank; remainder loaned on real estate.
Beacon Falls,	... .	1,748.25	1,748.25	In bonds, $1,000; in savings b'k, $748.25.
Totals,	$113,885.23	$109,900.54	$109,829.96	

NEW LONDON COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
New London,	$11,187.67	$11,187.67	$11,187.67	In savings banks, $10,537.67; in mortgages, $650.00.
Norwich,	13,301.41	13,301.41	13,301.41	Loaned to town of Norwich.
Bozrah,	2,771.87	2,771.24	2,771.24	Loaned to town of Bozrah.
Colchester,	5,324.16	4,325.00	5,324.16	Loaned to town of Colchester, $2,149.16; loans secured by mortgage, $2,650.00; in savings bank, $525.00.
Franklin,	3,066.60	2,124.60	2,124.60	Loaned to town of Franklin.
Sprague,	....	2,567.54	2,567.54	Loaned to town of Sprague.
Griswold,	5,681.17	5,681.09	5,681.09	Loaned to town of Griswold.
Groton,	6,839.48	6,839.48	6,839.48	Loaned to town of Groton.
Ledyard,	5,501.37	5,508.00	5,508.00	Loaned to town of Ledyard, $4,508.00; bank stock, $1,000.00.
Lebanon,	6,562.09	6,562.09	6,562.09	Loaned to the town of Lebanon, $5,117.09; on notes secured by mtge., $1,365.00; in savings bank, $80.00.
Lisbon,	2,994.68	1,385.81	1,385.81	Loaned to town of Lisbon.
Lyme,	7,636.69	3,715.58	3,715.58	Loaned to town of Lyme.
East Lyme,	3,451.29	3,450.00	3,450.00	Loaned to town of East Lyme.
Old Lyme,	....	3,904.09	3,904.09	Loaned to the town of Old Lyme, $3,629.09; to indiv's, $150; in land, $125.
Montville,	5,064.77	5,064.77	5,064.77	Loaned to town of Montville.
No. Stonington,	7,294.07	7,913.00	7,913.00	Loaned to town of No. Stonington, $4,613; b'k stk., $1,300; R.R. bds., $2,000.
Preston,	4,969.72	4,969.72	4,969.72	Loaned to town of Preston.
Salem,	2,463.04	2,463.04	2,463.04	Loaned to town of Salem.
Stonington,	8,734.96	8,734.91	8,734.91	Loaned to town of Stonington.
Waterford,	5,783.44	5,783.44	5,783.44	Loaned to town of Waterford.
Voluntown,	3,349.12	3,349.13	3,349.13	Loaned to town of Voluntown, $2,649.13; on mortgage, $700.00.
Totals,	$111,977.60	$111,601.61	$112,600.77	

FAIRFIELD COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
Bridgeport,	$7,191.33	$7,191.33	*$9,391.33	Loaned to town.
Danbury,	11,072.09	8,767.36	8,767.36	Loaned to town.
Bethel,	....	2,647.90	†3,083.93	Loaned to town.
Brookfield,	3,223.26	3,223.26	3,223.26	Loaned to town.
Darien,	3,112.84	3,162.00	3,042.00	Loaned to town, $2,867; mortgage, $175.
Fairfield,	7,697.32	7,900.00	7,900.00	Loaned to town, $7,400; b'k stk., $500.
Westport,	5,609.22	5,609.08	5,609.08	Loaned to town of Westport.
Greenwich,	9,762.24	9,760.24	9,760.24	Loaned to town of Greenwich.
Huntington,	3,521.19	3,521.19	3,521.19	Loaned to town of Huntington.
Monroe,	3,909.02	4,606.00	4,606.00	Loan to town of Monroe, $3,506; b'k stk., $600; mortgage on farm, $500.
New Canaan,	4,690.05	4,700.00	4,700.00	Loaned to town of New Canaan, $4,200; on bond and mortgage, $500.
New Fairfield,	2,411.68	2,500.00	2,500.00	Loaned to town of New Fairfield, $1,575; in real estate, $925.
Newtown,	7,951.57	8,851.57	8,851.57	Bank stock, $3,900; in savings banks, $4,951.57.
Norwalk,	7,877.09	7,877.09	7,877.09	Loaned to town.
Redding,	4,330.20	4,323.00	4,323.00	Loaned to town.
Ridgefield,	5,920.01	5,760.00	5,760.00	Loaned to town.
Sherman,	2,432.23	2,432.23	2,261.28	Loaned to town.
Stamford,	9,520.83	9,520.83	9,680.83	Loaned to town, $8,060; in savings bank, $1,620.83.
Stratford,	4,658.97	4,659.31	2,459.31	Loaned to town.
Trumbull,	3,199.88	3,389.88	3,389.88	Loaned to town.
Weston,	7,106.59	4,783.69	4,783.69	Loaned to town.
Easton,	....	2,323.00	2,323.00	Loaned to town.
Wilton,	5,385.81	6,000.00	6,000.00	Has been used by the town.
Totals,	$120,583.42	$123,508.96	$123,814.04	

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* In 1889 a part of the town of Stratford was annexed to Bridgeport and the Town Deposit Fund of Bridgeport was increased by $2,200.00.

† In 1869 a part of the town of Danbury was annexed to Bethel and the Town Deposit Fund of Bethel was increased $441.03.

WINDHAM COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
Brooklyn,	$3,726.66	$3,750.00	$3,750.00	Loaned to town.
Ashford,	6,834.34	3,673.33	3,673.33	Loaned to town $2,771.06; secured by mortgages, $400; in Sav. Bks., $502.27.
Eastford,	....	3,161.01	3,161.01	Loaned to town.
Canterbury,	4,828.87	2,413.28	2,413.28	Loaned to town.
Chaplin,	2,072.66	2,072.66	2,072.66	Loaned to town.
Hampton,	2,827.74	2,828.28	2,828.28	Loaned to town $788; on mortgages in town, $2,040; cash, $0.28.
Killingly,	8,365.08	7,697.05	7,697.05	Loaned to town.
Putnam,	....	4,317.34	4,317.34	Loaned to town.
Plainfield,	5,878.93	6,184.00	6,184.09	Loaned to town $4,984.09; mortgages, $800; note, $400.
Pomfret,	5,380.17	4,544.66	4,544.66	Loaned to town.
Sterling,	3,184.73	3,184.73	3,184.73	Loaned to town.
Thompson,	8,680.97	5,572.92	5,572.92	Invested in Bk. Stk., $2,100; in Sav. Bks., $929.62; rem. inv. in tn. ho.; pays no int.
Windham,	7,222.86	6,079.76	6,079.76	Loaned to town, $5,800.60.
Scotland,	....	1,106.47	1,106.47	Loaned to town.
Woodstock,	7,491.84	7,491.51	7,491.51	Loaned to town.
Totals,	$66,494.85	$64,077.00	$64,077.09	

LITCHFIELD COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
Litchfield,	$11,444.70	$8,714.94	$8,714.94	Loaned to town.
Morris,	....	2,217.00	2,217.00	Loaned to town.
Barkhamsted,	4,404.69	4,404.00	4,404.00	Loaned to town.
Bethlehem,	2,326.92	2,326.92	2,327.00	Mortgage with insurance, $2,202; loaned to town, $125.
Canaan,	5,909.74	3,000.17	3,000.17	Loaned to town.
North Canaan,	....	2,909.60	2,909.60	Loaned to town.
Colebrook,	3,421.04	3,471.19	3,423.19	Loaned to town.
Cornwall,	4,402.14	3,702.14	4,002.14	Loaned to town.
Goshen,	4,453.50	4,453.50	4,776.56	Loaned to town, $2,626.30; bank stock, $997.50; in savings banks, $1,152.76.
Harwinton,	3,893.60	4,012.32	4,012.32	Loaned to town.
Kent,	5,139.24	5,139.24	5,139.24	Loaned to town.
New Hartford,	4,535.68	4,535.70	4,535.70	Loaned to town, $4,035.70; on note, $500.
New Milford,	10,219.41	7,750.50	7,750.50	Invested in town farm.
Bridgewater,	....	2,481.27	2,481.27	Loaned to town.
Norfolk,	3,813.98	3,813.98	3,813.98	In s'v. b'k, $1,751.64; bds., $600; re'l est'e, $500; loaned t'n, $170; in b'k, $792.34.
Plymouth,	5,301.05	2,650.53	2,650.53	Loaned to town, $2,536.53; in secured notes, $114.
Thomaston,	....	2,650.52	2,650.52	Loaned to town.
Roxbury,	2,881.69	2,881.69	2,881.69	Loaned to town.
Salisbury,	6,626.22	3,773.46	3,331.15	Investments, $2,931.58; in savings bank, $399.57.
Sharon,	6,716.19	6,715.98	6,715.98	Loaned to town.
Torrington,	4,240.33	4,752.97	4,752.97	Loaned to town.
Warren,	2,532.38	2,532.38	2,532.38	Loaned to town.
Washington,	4,163.28	4,163.28	4,163.28	Loaned to town.
Watertown,	3,852.50	3,952.50	3,952.50	B'k stk, $800; loaned to town, $3,152.50.
Winchester,	4,575.68	4,550.84	4,550.84	Loaned to town.
Woodbury,	5,252.24	5,252.24	5,252.24	Loaned to town, $3,000; mortgage loan, $251.20; bonds, $2,000; cash, $1.04.
Totals,	$110,106.20	$106,808.86	$106,941.69	

MIDDLESEX COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
Middletown,	$17,700.97	$13,574.17	$13,574.17	Loaned to town of Middletown.
Cromwell,	....	2,618.56	2,618.56	Loaned to town, $2,218.56; mortgage, $100; savings bank, $300.
Middlefield,	....	1,508.24	1,508.24	Loaned to town.
Haddam,	7,769.21	7,769.21	7,769.21	Loaned to town, $6,759.21; on bond and mortgage, $1,010.
Chatham,	4,606.31	4,606.31	4,610.00	Loaned to town, $3,321.31; bk. stk., $300; sav. bk., $803.69; notes of indiv., $185.
Portland,	4,606.31	4,537.30	3,944.27	Loaned on notes, $3,700; in savings bk., $244.27.
Durham,	2,866.27	2,285.00	2,285.00	Loaned on notes.
East Haddam,	6,993.58	6,993.58	6,993.58	Loaned to town, $6,326.58; remainder in notes.
Killingworth,	6,376.75	3,189.87	3,189.87	In sav. bks., $1,189.87; loaned to town, $1,000; loaned to individuals, $1,000.
Clinton,	....	3,190.31	3,190.31	Loaned to town, $2,589.61; remainder loaned on real estate.
Saybrook,	7,617.32	2,131.12	2,131.12	Loaned on first mortgage, $1,381.12; loaned to town, $750.
Chester,	2,224.18	2,224.48	2,224.18	Bonds and notes.
Westbrook,	3,046.40	3,046.40	3,046.40	A part is loaned on real estate; the balance is deposited in savings banks.
Old Saybrook,	....	2,038.86	2,038.86	Loaned to town, $1,738.86; mortgage loan, $300.
Essex,	....	3,460.83	3,560.83	Loaned to town, $1,309.37; on real estate, $1,375; in savings banks, $876.46.
Totals,	$63,807.30	$63,174.24	$62,684.60	

TOLLAND COUNTY

Towns.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.	How Invested in 1896.
Tolland,	$4,361.04	$4,361.04	$4,361.04	A part in real estate loan; the remainder in savings banks.
Bolton,	1,910.85	1,910.85	1,910.85	Loaned to town.
Columbia,	2,470.75	2,470.75	2,470.75	Loaned to town.
Coventry,	5,442.31	4 594.01	4,594.01	Loaned to town.
Ellington,	3,736.93	3,736.93	3,736.93	Loaned to town.
Hebron,	4,974.88	4,159.91	4,159.91	Loaned to town.
Andover,	....	1,663.34	1,663.40	Loaned to town, $763.40; the remainder in mortgages.
Mansfield,	6,734.34	6,734.34	6,834.34	Loaned to town, $6,734.34; on mortgage, $100.
Somers,	3,670.16	3,670.16	3,670.16	Loaned to town, $1,607.40; on mortgage, $1,010; in savings banks, $1,052.76.
Stafford,	6,459.36	6,472.01	6,466.01	Loaned to town, $6,366.01; on mortgage, $100.
Union,	1,826.10	1,832.00	1,832.00	Loaned to town.
Vernon,	2,989.56	3,000.00	3,000.00	Loaned to town, $1,972.73; to individuals, $1,027.27.
Willington,	3,357.67	3,351.67	3,351.67	Loaned to t'n, $1,300; sav. b'ks, $301.67: remainder in b'k stk. and mortgages, which are much depreciated in value.
Totals,	$47,927.95	$47,957.01	$48,051.07	

SUMMARY BY COUNTIES

Counties.	Town Deposit Fund, Jan., 1847.	Town Deposit Fund, Jan., 1887.	Town Deposit Fund, Jan., 1896.
Hartford, ...	$130,197.41	$126,298.65	$126,973.12
New Haven, ...	113,885.23	109,900.54	109,829.96
New London, ...	111,977.60	111,601.61	112,600.77
Fairfield, ...	120,583.42	123,508.96	123,814.04
Windham, ...	66,494.85	64,077.00	64,077.09
Litchfield, ...	110,106.20	106,808.86	106,941.69
Middlesex, ...	63,807.30	63,174.24	62,684.60
Tolland, ...	47,927.95	47,957.01	48,051.07
Totals, ...	$764,979.96	$753,326.87	$754,972.34

Amount deposited, $763,661.83.

CLASS I.

Towns which have taken the principal of the fund, either in whole or in part, giving a note or order or in proper form keeping alive the obligation:

Hartford Co.
Hartford
Avon
Berlin
Bloomfield
Bristol
Burlington
Canton
East Granby
East Hartford
East Windsor
Enfield
Farmington
Granby
Hartland
Marlborough
New Britain
Rocky Hill
Southington
South Windsor
Suffield
West Hartford
Windsor Locks

New Haven Co.
New Haven
Cheshire
Derby
East Haven
Guilford
Hamden
Madison
Meriden
Middlebury
Naugatuck
North Haven
Orange
Oxford
Prospect
Seymour
Wallingford
Waterbury
Woodbridge

New London Co.
Norwich
Bozrah
Colchester
East Lyme
Franklin
Griswold
Groton
Lebanon
Ledyard
Lisbon
Lyme
Montville
North Stonington
Old Lyme
Preston
Salem
Sprague
Stonington
Voluntown
Waterford

Fairfield Co.
Bridgeport
Danbury
Bethel
Brookfield
Darien
Easton
Fairfield
Greenwich
Huntington
Monroe
New Canaan
New Fairfield
Norwalk
Redding
Ridgefield
Sherman
Stamford
Stratford
Trumbull
Weston
Westport

Windham Co.
Brooklyn
Ashford
Canterbury
Chaplin
Eastford
Hampton
Killingly
Plainfield
Pomfret
Putnam
Scotland
Sterling
Windham
Woodstock

Litchfield Co.
Litchfield
Barkhamsted
Bethlehem
Bridgewater
Canaan
Colebrook
Cornwall
Goshen
Harwinton
Kent
Morris
New Hartford
Norfolk
North Canaan
Plymouth
Roxbury
Sharon
Thomaston
Torrington
Warren
Washington
Watertown
Winchester
Woodbury

Middlesex Co.
Middletown
Haddam
Chatham
Clinton
Cromwell
East Haddam
Essex
Killingworth
Middlefield
Old Saybrook
Saybrook

Tolland Co.
Andover
Bolton
Columbia
Coventry
Ellington
Hebron
Mansfield
Somers
Stafford
Union
Vernon
Willington

CLASS II.

Towns in which the principal is loaned either in whole or in part, on mortgage, or secured notes :

Hartford Co.
Bloomfield
Bristol
Burlington
Hartland
Manchester
Southington
Suffield
Windsor
Windsor Locks

New Haven Co.
New Haven
Bethany
East Haven
Milford
Madison
Wolcott

New London Co.
New London
Colchester
Lebanon
Voluntown

Fairfield Co.
Darien
Monroe
New Canaan

Windham Co.
Ashford
Hampton
Plainfield

Litchfield Co.
Bethlehem
Woodbury

Middlesex Co.
Haddam
Cromwell
Clinton
Essex
Old Saybrook
Saybrook
Westbrook

Tolland Co.
Tolland
Andover
Mansfield
Somers
Stafford
Willington

CLASS III.

Towns in which the money is loaned, either in whole or in part, to individuals:

Hartford Co.
East Windsor
Glastonbury
Simsbury

New Haven Co.
Guilford
Meriden
Orange

New London Co.
Old Lyme

Middlesex Co.
Chatham
Killingworth

Tolland Co.
Vernon

CLASS IV.

Towns which have invested the money, in whole or in part, in savings banks or bank stock:

Hartford Co.
Avon
Burlington
Newington
Southington
Simsbury
Windsor Locks

New Haven Co.
Cheshire
Beacon Falls
Bethany
Waterbury

New London Co.
New London
Colchester
Ledyard
Lebanon
North Stonington

Fairfield Co.
Fairfield
Monroe
Newtown
Stamford

Windham Co.
Ashford
Thompson

Litchfield Co.
Goshen
Norfolk
Salisbury
Watertown
Woodbury

Middlesex Co.
Haddam
Essex
Chatham
Cromwell
Killingworth
Portland
Westbrook

Tolland Co.
Tolland
Somers
Willington

CLASS V.

Miscellaneous.

In State Treasury
  Wethersfield . . . .
  North Branford . . . .
  Southbury . . . .
Town Farm, almshouse or public buildings
  Ansonia, almshouse . . . .
  Branford, public buildings . . . . . .
  New Milford, town farm . . . . . .
Loaned on notes
  Portland . . . .
  Durham . . . .
  Chester . . . .
In real estate
  New Fairfield (part) . . . .
  Tolland . . . .
"Investments"
  Salisbury . . . .
Not collectible
  Oxford (part) . . . .
Used by the town
  Wilton . . . .
No fund
  Plainville . . . .

HIGH SCHOOLS

I.

The following resolution was passed by the General Assembly of 1895 :

> That the State Board of Education is hereby directed to investigate the subject of high school extension, and to call to its aid those who may desire to offer suggestions and recommendations, and to make use of any means which shall not cause additional expense to the State, which may seem desirable to give the best solution of the problem ; the results of such investigation to be incorporated in its next annual report, together with such recommendation in the matter of legislation as it may deem to be wise.

The terms of this reference have been understood to cover all questions relating to high school education in this State.

The topics especially dealt with are :

1. The condition of these schools.
2. The extent to which they meet the requirements of the school population.
3. An examination of the instruction actually given, a description of the methods and avowed purposes of the instruction, and a consideration of what the instruction ought to cover.

A study of the details set forth in the following tables is essential to an understanding of the high school problem and an intelligent appraisement of its difficulties. The fullness of these details is justified by the importance of the object, which is nothing less than the "extension" and completion of an educational system for many towns in the State. Incidentally, light will be thrown on the relations between the elementary schools and the high schools in all parts of the State.

Several methods of gathering information have been pursued :

1. Statistical information has been obtained from every high school in the State.
2. Many schools have been visited, and the management and the character of the instruction noted.
3. All available courses of study — programs and documents relating to the external and internal management of the schools have been collected.
4. To principals who are especially competent to supply information questions were sent and their answers are set out in full.

The tables comprise the following subjects:

Table I. General
II. Organization
III. Science
IV. English
V. English Literature
VI. History
VII. Civil Government
Table VIII. Modern Languages
IX. Latin
X. Greek
XI. Mathematics
XII. Courses of Study
XIII. College Entrance Requirements.

GENERAL

TABLE I.

Table I, found also on page 56, is compiled from returns of principals and school officers. The information is complete, except as to expenses. In most towns, high schools are in the same building with other schools, and the fuel and incidentals of the High School department cannot be separated from the whole expense of the building.

The *number of classes* in this table shows the number of years required to complete the course of study and is correct for the year 1895–6. In tables III–XI, *number of years in course* sometimes represents the course as planned and not the actual course in the year 1895–6.

A summary of this table is as follows :

Number of High Schools,	68	
Number of town (consolidated) High Schools,	23	
Number of town High Schools,	13	
Number of District High Schools,	23	
Number in class a (highest),	729	
b,	1,100	
c,	1,544	
d,	2,360	
Graduate Students,	147	
Unclassified,	69	
Total,		5,949
Number of teachers (men),	108	
(women),	156	
Total,		264
Number in Classical courses,	1,712	
* Scientific "	1,237	
† English "	1,946	
Commercial "	274	
Other "	570	
Graduates in Classical course,	290	
* Scientific "	181	
† English "	280	
Commercial course,	42	
Other courses,	25	— 818 §
Graduates who entered college (boys),	108	
" " " (girls),	51	
Total,		159

Expenses, teachers' wages, $230,571.10.
Number of High School buildings, 14.

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* This includes Latin-Scientific and Scientific-Latin courses.

† This includes English-Latin, Latin-English, and General courses.

§ This number is larger than the number in the highest class, 729. The explanation is that several schools "graduate" their scholars at the end of one, two, or three years — see table. The number graduated from schools requiring four years' work is 652 ; of these 160 went to college.

TABLE I—GENERAL STATIS

Town	Town or District	No. of Classes	Number in Each Class							Teachers		No. of Courses	Number in Each Course					Graduates i Course t Summe		
			a highest	b	c	d	Graduate Students	Unclassified	Total	Men	Women		Classical	Scientific*	English†	Commercial	Other Courses	Classical	Scientific*	English†
1 Ansonia	Town	4	8	12	14	21	....	1	56	2	2	3	3	3	....	....	50	....	2	....
2 Bethel	Town	3	...	10	26	32	10	...	78	1	1	2	38	30	....	....	....	6	4	....
3 Branford	Center	3	...	8	9	13	....	...	30	1	1	1	....	30	....	....	....	....	7	....
4 Bridgeport	Town	4	31	58	73	94	1	...	257	3	8	4	41	43	172	70	....	6	3	14
5 Bristol	Town	4	17	19	19	41	1	...	97	1	5	3	50	47	....	....	....	5	12	....
6 Canton	Collinsville	4	12	16	11	30	....	...	69	1	1	2	35	3	....	....	....	....	....	....
7 Cheshire	Town	2	...	....	23	30	....	...	53	1	....	2	50	....	....	5	....	....	....	....
8 Cromwell	Center	1	...	....	....	4	....	...	4	....	1	3	....	29	....	....	....	....	....	....
9 Danbury	Town	3	...	26	33	57	....	...	116	1	2	2	47	69	....	....	....	16	9	....
10 Derby	Town	4	9	1	14	22	....	...	46	1	3	3	12	2	9	....	23	1	....	3
11 Durham	Center	1	...	....	....	....	....	18	18	1	....	1	....	....	18	....	....	....	....	....
12 East Hartford	Town	3	...	5	17	28	....	...	50	1	1	3	....	24	13	....	13	....	3	1
13 Enfield	Town	4	4	7	17	17	....	...	45	1	2	...	8	....	10	....	27	1	....	2
14 Farmington	Center	2	...	....	7	5	....	...	12	1	....	1	....	....	....	....	....	....	....	....
15 Farmington	Unionville	4	8	12	14	18	....	12	64	1	1	2	52	....	12	....	....	7	....	1
16 Greenwich	Meeting House	2	...	....	22	18	....	...	40	1	1	3	5	29	6	....	....	....	....	....
17 Groton	District 5	4	7	9	11	15	1	...	43	1	....	2	30	12	....	....	....	4	3	....
18 Guilford	Town	4	5	14	10	12	3	2	46	1	1	2	2	....	44	....	....	1	....	6
19 Hartford	Town	4	115	123	167	288	47	...	740	15	15	4	515	50	125	50	....	75	5	29
20 Huntington	Shelton	4	5	8	9	4	....	3	29	1	2	...	....	29	....	....	....	....	5	....
21 Killingly	No. 1	4	14	13	16	26	14	...	83	1	2	4	15	14	26	....	14	5	2	7
22 Litchfield	Town	4	5	6	8	15	....	6	40	1	1	3	4	21	15	....	....	....	....	....
23 Madison	Town	3	...	6	5	6	....	...	17	....	1	2	8	17	....	....	....	....	....	....
24 Manchester	Town	4	11	9	18	35	....	...	73	2	4	3	8	....	65	....	....	4	....	7
25 Meriden	Town	4	33	46	88	114	....	...	281	3	8	4	17	22	107	....	145	5	4	20
26 Middletown	Town	4	32	45	56	73	....	...	206	2	5	2	....	....	....	....	....	....	....	30
27 Milford	Consolidated	3	...	7	10	30	....	...	47	1	2	2	27	....	20	....	....	7	....	....
28 Naugatuck	Town	4	5	7	10	25	....	...	47	1	1	4	15	10	12	....	10	....	....	....
29 New Britain	Town	4	41	42	77	107	8	...	275	4	6	4	22	181	72	....	....	5	16	17
30 New Canaan	Center	2	1	6	1	6	....	...	7	1	2	...	7	....	53	....	....	....	....	....
31 New Hartford	North End	3	...	3	11	5	....	...	19	1	....	1	....	....	12	....	7	....	....	....
32 New Haven	Town	4	140	180	210	230	....	...	760	8	17	4	340	170	160	90	....	60	30	52
33 New Haven	Boardman	3	...	48	43	95	....	6	192	8	6	...	....	60	126	....	....	....	....	....
34 New Haven	Westville	1	...	....	....	14	....	...	14	1	1	1	14	....	....	....	....	9	....	....
35 New Milford	Center	2	...	....	12	24	....	...	36	1	....	1	....	....	36	....	....	....	....	....
36 North Canaan	District 2	2	...	....	10	25	10	...	45	1	....	...	....	....	....	....	....	10	....	....
37 Old Saybrook	Town	3	...	5	4	11	....	1	21	1	1	1	....	....	....	....	20	....	....	....
38 Orange	District 1	4	4	11	4	3	....	...	22	....	1	1	3	....	19	....	....	2	....	1
39 Orange (West Haven)	Union	3	...	11	11	21	....	...	43	1	2	1	....	....	43	....	....	....	....	....
40 Plainville	Town	3	...	6	17	14	....	...	37	1	1	2	....	....	25	....	12	....	....	....
41 Plymouth	District 1	2	...	....	3	16	....	...	19	....	1	1	....	....	....	....	19	....	....	....
42 Plymouth	District 2	3	...	5	8	15	....	...	28	1	....	2	....	6	22	....	....	....	....	4
43 Portland (Gildersleeve)	Dist. 1	2	...	....	9	5	....	...	14	1	1	2	5	9	19	....	....	....	....	....
44 Portland	District 2	3	...	7	11	13	4	...	35	1	1	2	10	2	23	....	....	1	1	5
45 Putnam	Town	4	15	18	13	35	....	...	81	1	3	2	8	....	73	....	....	8	....	7
46 Salisbury	Lakeville	3	...	6	6	10	....	4	26	1	....	...	....	14	12	....	....	....	....	....
47 Saybrook	Union	3	...	6	19	14	6	...	35	1	1	1	....	....	48	....	....	....	....	....
48 Seymour	Town	4	8	6	11	14	....	...	39	1	1	2	....	....	32	....	7	....	....	5
49 Sharon	Town	2	...	....	8	12	....	...	20	1	...	1	36	....	....	....	....	5	....	....
50 Southington	Town	4	19	38	33	47	3	...	140	1	4	3	....	....	45	15	80	16	....	3
51 South Windsor	Town	2	...	....	2	12	....	...	14	....	1	2	13	....	1	....	....	....	....	....
52 South Windsor	Wapping	3	...	8	3	6	....	1	18	....	1	2	6	....	12	....	....	....	....	....
53 Stafford	Town	4	20	31	12	14	2	...	79	1	2	3	10	31	36	....	....	3	8	3
54 Stamford	Town	4	26	36	50	73	24	...	209	3	6	4	15	94	76	....	....	4	11	9
55 Stonington	District 9	2	...	....	7	9	....	...	16	1	1	1	....	....	....	....	38	....	....	....
56 Stonington	District 18	3	...	10	9	3	9	2	33	1	1	1	31	....	....	....	2	9	....	....
57 Stonington	District 3	3	...	7	5	10	....	...	22	....	1	1	14							
58 Stratford	District 1	2	...	....	9	24	....	...	33	1	1	1	33	....	....	....	....	....	....	....
59 Thomaston	Town	3	...	6	12	10	....	...	28	1	1	...	....	....	....	....	....	....	....	....
60 Torrington	Town	4	16	12	23	54	....	...	105	2	4	4	46	10	19	30	....	3	3	9
61 Vernon	Rockville	4	21	23	33	50	1	...	128	1	4	4	15	40	59	14	....	2	10	8
62 Wallingford	Central	4	12	9	18	37	....	6	82	2	2	4	11	12	29	....	25	....	5	....
63 Waterbury	Town	4	58	57	55	106	....	...	276	6	4	4	45	118	42	....	58	3	34	16
64 West Hartford	Town	4	4	4	10	18	2	1	39	1	1	2	....	....	19	....	20	....	....	1
65 Wethersfield	Town	2	...	....	6	16	....	...	22	....	1	2	16	6	....	....	....	2	4	....
66 Windham	Town	4	17	25	36	56	....	6	140	2	3	2	10	....	130	....	....	3	....	13
67 Windsor	District 1	4	6	7	11	18	....	...	42	1	1	2	18	....	34	....	....	2	....	2
68 Windsor Locks	Union	2	...	....	8	6	1	...	15	1	1	1	....	....	15	....	....	....	....	5
Total			729	1100	1544	2360	147	69	5949	108	156	...	1712	1237	1946	274	570	290	181	280

* Including Scientific-Latin and Latin-Scientific.
† Including Latin-English, English-Latin, and General.

F HIGH SCHOOLS, 1895—1896

RADUATES WHO ENT TO COL- GE THIS FALL		COLLEGE ENTERED															EXPENSES						
Boys	Girls	Amherst	Bryn Mawr	Cornell	Harvard	Holy Cross	Mass. Inst of Technology	Mt. Holyoke	Smith	Trinity	Vassar	Wellesley	Wesleyan	Worcester Polytech	Yale	Other Colleges	Teachers' Wages	Fuel	Incidentals	Building	How many rooms for High School Classes	NAME OF PRINCIPAL	
2																2	$5,000.00			No	4	Madge E. Richmond	1
																	1,390.00	$66 00	$15.00	Yes		E. M. Crofoot	2
																	1,700.00	25.00		No	1	C. H. Harriman	3
9	2								1				1	1	5	3	11,700.00			No	12	H. D. Simonds	4
3	1							1						2	1		5,255.00	582.77	1,359.18	Yes		Elmer S. Hosmer	5
																	2,182.00			No	2	George W. Flint	6
																	850.00	33.75		No	1	Arthur V. Woodworth	7
																	486.00			No	1	Sarah M. Savage	8
1												1					2,610.00			No		Frank H. Burnett	9
																	3,550.00	75.00		No	1	J. W. Peck	10
																	400.00			No	1	F. W. Doane	11
																	1,511.00	76.75	223.00	Yes		Hudson H. Lyon	12
																	2,400.00	230.00	50.00	No	1	E. H. Parkman	13
																	800.00			No		C. W. Ruic	14
																	1,840.00	75.00	5.00	No	1	H. R. Monteith	15
																	2,000.00			No	1	Newton B. Hobart	16
																	900.00			No	1	Henry C. Moore	17
																	1,460.00			No	1	W. E. Soule	18
17	13							1	5		1	1	5	1	16		33,680.00			Yes		Edward H. Smiley	19
1	1												1		1		1,100.00			No	3	Alton W. Pierce	20
2	2							1	1							2	2,456.00			No	3	A. P. Somes	21
																	1,600.00	40.00		No	2	Edgar Wood	22
																	780.00			No	1	Cora K. Clifford	23
3										1						2	4,580.88			No	5	F. A. Verplanck	24
4	2												1		3	2	8,850.00	509.00	425.00	Yes		S. T. Frost	25
1	5												5			1	7,000.00			Yes		W. B. Ferguson	26
																	1,200.00	175.00		No		H. I. Mathewson	27
																	1,800.00			No	1	H. L. Wilbur	28
5	2			1					1				2		2	1	8,498.22	200.00	54.87	No	9	Enoch C. Adams	29
																	2,000.00	191.30	252.50	No	1	George W. Gamble	30
																	850.00			No		Edgar H. Lane	31
40	14		2	1					8		1	3			39		26,000.00	800.00	1,200.00	Yes		Isaac Thomas	32
																	15,500.00			Yes		Thomas W. Mather	33
																	1,500.00			No		C. S. McLean	34
																	1,000.00			No	1	S. C. Shaw	35
																	540.00			No	1	Sarah J. Roraback	36
																	1,280.00	21.00	10.00	No	1	F. A. Curtiss	37
																	432.00			No	3	Christine V. Whipple	38
																				No	1	A. M. Drummond	39
																	1,600.00			No	1	M. E. Powers	40
																	608.00			No		Mary O. Wright	41
																	1,000.00			No	1	F. H. Davis	42
																	1,350.00	66.00	35.00	No	2	D. C. Abbott	43
1													1				2,050.00	60.00	100.00	No	4	Martin W. Griffin	44
2	2					1		2								1	2,700.00	150.00		Yes		F. E. Burnette	45
																	1,000.00	50.00	50.00	No		Jos. E. Marvin	46
																	1,292.00			No	3	F. N. Hanchett	47
																	2,050.00	50.00	40.00	No	1	E. C. Stiles	48
																	810.00		50.00	No	1	Edward D. Kelsey	49
																	3,800.00	150.00	25.00	Yes		H. W. Rice	50
																	640.00			No	1	Evangeline Kendall	51
																	576.00	47.85		Yes		Susie M. Lindsey	52
																	2,000.00			No	2	Samuel A. Jacobs	53
1															1		7,750.00	450.00	100.00	Yes		W. R. Jones	54
																	1,305.00	30.00	35.00	No	1	Warren E. Fisher	55
																	1,596.00	50.00	40.00	No	1	E. W. Clarke	56
																				No	1	Hattie E. Park	57
																	750.00	30.00	5.00	No	1	J. T. Corlew	58
																	1,700.00		50.00	No	3	Geo. T. Cookingham	59
5	3							1	2				1		4		3,400.00	300.00	500.00	No	2	Edwin H. Forbes	60
2	2	1				1		1	1								3,580.00	930.00		Yes		Isaac M. Agard	61
2	2			2												2	2,000.00			No	4	Frank Warren Eaton	62
4						2				1					1		10,000.00	500.00		*No	5	S. W. Wilby	63
1					1												1,700.00			No	2	A. F. Howes	64
																	1,000.00			Yes		Harriet M. Stone	65
2							1								1		4,565.00			No	5	S. Hale Baker	66
																	1,400.00	90.00	15.00	No	1	R. A. Hutchinson	67
																	1,668.00	25.00	20.00	No	1	Daniel Howard	68
108	51	1	2	4	1	4	1	7	19	2	2	5	17	4	64	16	$230,571.10			†14			

* One in course of erection.
† 14 towns have high school buildings.
53 towns have no high school buildings.

ORGANIZATION

TABLE II.

2. *Admission.* Three methods of admission are found :

(*a*) Examination of all who apply by High School authorities.

(*b*) Entrance upon certificate of grammar school teachers. This certificate is granted when scholars have fulfilled all grammar school requirements, and is usually based upon tests and examinations, no less rigid than those given by High School authorities.

(*c*) Entrance upon certificate based upon the teacher's opinion of ability.

Promotion in Course, in the following table, refers to (*b*) and does not mean that scholars pass from grammar school to high school as they pass from kindergarten to primary school "in course."

Examination of all applicants refers to (*a*).

The particular stage at which examinations are introduced to the elementary schools varies, but the opinion is nearly unanimous that entrance to High School should depend upon examination in the usual meaning of that term.

Examination of strangers only covers applicants from other towns, from private schools, and in some cases those who having failed in the grammar schools voluntarily take the entrance examination.

3. Under *stated course* is included a number and order of studies which will, when completed, secure a certificate stating that the course has been completed. On page 146 will be found the time required to complete the stated courses.

In few schools are special students admitted. Each scholar must take all the studies in a course, and succeed in all or be dropped.

4. *Physical and chemical apparatus and collections of minerals*, etc., do not intimate that apparatus or collections are serving any useful purpose. There are snakes, toads, and insects that are sleeping under accumulations of dust, and apparatus that has never been startled into activity. Several years ago there was in one school a large collection of expensive apparatus, labeled conspicuously "HANDS OFF."

5. An endeavor was made to ascertain accurately the number of *students from out of town.* Exact figures, however, cannot be given. Many gain, either with relatives or

friends, or in some other way, a residence entitling them to high school instruction. The returns show that there are registered in these schools 211 out-of-town scholars.

6. *The number of graduates* of all high schools is reported to be 6,852. *Graduates* are those who have obtained certificates or diplomas in course. Graduates of all courses, whether one, two, or three years, are included. At least two-thirds spent four years in a high school. It is estimated that one-sixth of these graduates entered college.

7. *The year that graduation exercises were first held* is valuable as marking the time when the high school first pretended to have a distinct organization, and be separate from the elementary departments.

TABLE II — ORGANIZATION

TOWN	I. Hours						II. Admis'n			III. Work Done				IV. Appliances						V.	VI.	VII.
	A. M.			P. M.																		
	From	To	Recess,—minutes	From	To	Recess,—minutes	Promotion in course	Examination of all applicants	Examination of strangers only	Is there a stated course	Are students fitted for college	Are diplomas given	Are graduating exercises held	Separate building	Laboratory,—Physical	Laboratory,—Chemical	Library,—volumes in	Collections of minerals, etc.	Worth of apparatus, $	Pupils,—No. from out of town	Gradutes,—No. of	Year that graduation exercises first held
Ansonia[1]	8.45	1	10	0	0	0	no	yes	no	yes	yes	yes	yes	no	yes	yes	2500	small	800	0	....	....
Bethel[2]	9	12	15	1.15	3.45	10	no	yes	...	yes	no	yes	yes	yes	no	no	235	small	50	1	86	1889
Branford[3]	9	11.45	10	1	4	10	yes	...	...	yes	no	yes	yes	no	no	yes	700	yes	100	0	120	1878
Bridgeport[4]	8.30	1	20	0	0	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	500	yes	1500	25	561	1881
Bristol	9	12	15	1.15	3.30	0	no	yes	...	yes	yes	yes	yes	yes	yes	yes	....	.....	....	0	100	1886
Canton[5]	9	11.45	15	1.15	3.45	?	no	yes	...	yes	yes	yes	yes	no	no	no	100	small	25	..	78	1879
Cheshire	..	.....	..	....	....	..	...	...	...	...	...	...	...	...	...	...	....	.....	....	..	....	....
Cromwell	9 45	12	15	1	4	15	no	yes	...	no	no	no	no	no	no	no	100	small	....	0	....	....
Danbury[6]	8.45	1	0	0	0	0	no	yes	...	yes	yes	yes	yes	no	no	no	300	yes	1000	..	....	....
Derby[7]	8.	1	0	0	0	0	no	yes	...	yes	yes	yes	...	no	no	no	300	.....	100	..	....	....
Durham	....	.....	..	....	....	..	...	...	...	...	...	...	...	...	...	...	....	.....	....	..	....	....
East Hartford[8]	9	12.25	10	12.50	2.45	0	no	yes	no	yes	no	yes	yes	yes	no	no	50	small	....	1	16	1894
Enfield	8.30	1.30	20	0	0	0	no	yes	...	yes	yes	yes	yes	no	yes	yes	1200	yes	....	..	....	....
Farmington	9	12	15	1.15	4	15	no	yes	...	no	no	no	no	no	no	no	8	no	....	0	....	....
(Center)	....	.....	..	....	....	..	...	...	...	...	...	...	...	...	...	...	....	.....	....	..	....	....
(Unionville)[9]	9	12	0	1.15	3.45	0	no	yes	...	yes	no	yes	yes	no	no	no	400	no	50	..	95	1882
Greenwich[10]	9	12	15	1	3.15	0	no	yes	...	yes	yes	...	...	no	no	yes	1055	yes	30	..	....	....
Groton	9	12	15	1.15	3.15	5	yes	no	yes	yes	no	yes	yes	no	no	no	40	no	....	..	29	1892
Guilford[11]	9	11.45	25	1.15	4	25	yes	...	...	yes	yes	yes	yes	no	no	no	300	.....	50	..	....	....

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[1] The English course of study has "died out."

[2] Examination for admission is conducted by Board of Education. If an applicant comes from out of town, the Principal examines. The teacher of the highest grammar grade prepares a series of questions from which the Board make selections if they choose.

The graduates of the last seven years number 76. These are classified as follows: Married, 9; teaching, 11; trained nurse, 1; graduate in pharmacy, 1; hatters, 13; in factory, 3; clerks, 2; engaged in office work, 2; at home (presumably assisting in home household work), 18; preparing for college, 1; pupil at Northfield, 1; carpenter (studying mechanical drawing in order to rise in his business), 1; at leisure, 1; farmer, 1; medical student, 1; in business for himself, 1; telegraph operator, 1; in normal school, 1; assistant in photograph studio, 1; in a meat market, 1; in blacksmith shop, 1; invalids, 2; deceased, 1; unknown, 1.—Total 76.

[3] Pupils who, in the grammar grade, attain to the rank of "Excellent," or "Good," are admitted without examination. Applicants failing to receive such rankings must undergo examination. In the attic has been fitted up an inexpensive but truly serviceable chemical laboratory.

[4] There is also a biological laboratory.

[5] Classes are not regularly graduated. The year 1879 witnessed the first graduation, since which time there have been five years without classes. The total number of graduates is 78. This number is classified as follows: Married, 24; at home, 7 (both these classes presumably occupied with household duties); teachers, 9; typewriters, 3; now in college (Yale, 2; Union, 1; St. Charles (?), 1; Mt. Holyoke, 1), 5; in college of oratory, 2; mechanics, 2; physicians, 2; lawyers, 2; trained nurses, 2; while the occupations of nurse, nurseryman, missionary, banker, draughtsman, carpenter, medical missionary, clerk in post-office, civil engineer, government clerk, ass't supt. in mfg. estab., farmer, dressmaker, clerk, shipping clerk, in business, music teacher, expressman, merchant, in nurse-training, take one each. Fifteen of the 78 graduates went to college.

[6] The school is held in a rented building and suffers much from lack of conveniences.

[7] Admission is by special examination, combined with a record of last year's work. Since 1886, with the exception of one year, classes have graduated regularly. The total number of graduates is 75. Of this number there are teachers, 17; at home and presumably assisting in home duties, 11; clerks, 8; married, 6; in college or about to enter (Yale, 9; Wesleyan, 2; Wellesley, 1), 12; recent graduates and undecided, 5; in normal school, 2; while one each, is a missionary to China, an electrician, a superintendent of construction of gas plants in England, in iron business, a physician, a civil engineer, a draughtsman, secretary of an iron foundry company, lawyer, in Yale law school, in town clerk's office, a plumber, clerk in an office, unknown. Besides the 12 who are now in college or are about to enter, 11 others are college graduates.

[8] Those who go home to lunch are allowed 50 minutes. Examinations (50 per cent.) admit to the preparatory class, when regular promotion on class work (75 per cent.) admits to the high school division proper.

[9] Pupils have gone to college, but out-of-school work by the principal was necessary.

[10] The school is young; there are as yet no graduates.

[11] Pupils are admitted on their year's work. Special examinations were in vogue until about two years ago, when they were abolished. The parents of nearly all pupils are tax-payers; there can be but one or two exceptions.

TABLE II — ORGANIZATION — CONTINUED

	I. HOURS						II. ADMIS'N			III. WORK DONE				IV. APPLIANCES						V.	VI.	VII.
	A. M.			P. M.																		
TOWN	From	To	Recess,—minutes	From	To	Recess,—minutes	Promotion in course	Examination of all applicants	Examination of strangers only	Is there a stated course	Are students fitted for college	Are diplomas given	Are graduating exercises held	Separate building	Laboratory,—Physical	Laboratory,—Chemical	Library,—volumes in	Collections of minerals, etc.	Worth of apparatus, $	Pupils,—No. from out of town	Graduates,—No. of	In what year was the practice of graduation begun
Hartford	9	1.30	20	0	0	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	4675	yes	....	..	1948	1848
Huntington (Shelton)	8.45	1	15	0	0	0	no	yes	...	yes	yes	yes	yes	no	no	no	350	yes	200		....	....
Killingly[1] (Danielson)	9	12	0	1.15	3.30	0	yes	no	yes	yes	yes	yes	yes	no	yes	yes	850	yes	400	14	189	1875
Litchfield	9	12	15	1.15	4	0	yes	no	yes	yes	yes	yes	no	no	no	no	0	small	30	3	....	1896
Madison	9	12	15	1.15	3.30	15	no	yes	...	yes	no	yes	yes	no	no	no	100	.....	40	0	....	....
Manchester (So. Manchester)	9	11.30	0	1	3.30	0	yes	no	yes	yes	yes	yes	yes	no	yes	yes	5000	yes	...	0	20	1893
Meriden	8.30	1	..	0	0	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	3300	yes	. .	10	286	1883
Middletown.[2] (City Sch. Dist.)	8.30	1	15	0	0	0	yes	no	...	yes	yes	yes	yes	yes	yes	yes	300	yes	2000	..	....	....
Milford	9	12	5	1.30	4	5	no	yes	no	...	no	...	...	no	no	no	300	.....	....	..	....	....
Naugatuck[3]	9	11.30	0	1	3.45	0	yes	...	...	yes	yes	yes	yes	no	yes	yes	1000	.....	500	2	....	....
New Britain[4]	9	11.55	15	1.30	3.45	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	700	yes	1400	31	447	1867
New Canaan[5]	9	11.45	10	1	3.15	10	yes	no	yes	no	no	yes	yes	no	no	no	153	0	10	0	1	1896
New Hartford	9	12	5	1	3.30	5	yes	no	yes	no	no	yes	yes	no	no	no	75	.....	5	0	19	1890
New Haven[6] (City Sch. Dist.) (Boardman) (Westville)[7]	8.30	1	..	0	0	0	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	3000	yes	....	10	1500	1870
New Milford	9	12	10	1	3.30	10	yes	no	yes	no	no	yes	yes	no	no	no	447	.....	....	1	0	1897
North Canaan	9	12	10	1	3.30	0	yes	no	yes	...	no	yes	yes	no	no	no	82	.....	....	2	10	1893
Old Savbrook	8.30	1	10	0	0	0	yes	no	...	yes	no	yes	yes	no	no	no	300	small	20	2	14	1894
Orange[8] (Dist. 1) (Union District)	9	11.45	0	1.45	3.45	0	yes	no	...	yes	no	yes	yes	no	no	no	580	.....	....	..	32	1893
Plainville	9	11.45	0	1	3.30	0	no	yes	...	yes	no	yes	yes	no	no	no	0	. ...	25	..	....	1885

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[1] A tuition of $1.00 per week is charged out-of-town pupils.

[2] The higher two-thirds of candidates from grammar schools are admitted without examination, provided a mark of not less than 70 in arithmetic, history, and language has been attained; the lower third and all others are examined. There are 52 tuition pupils.

[3] The superintendent and teacher watch carefully the progress of pupils during the eighth school year, and make, consequently, few mistakes in making promotions There are examinations on entrance, but of no different character than those for promotions in the lower grades. There have been as yet on the new full course, no graduates.

[4] Even strangers are sometimes admitted without examination under certain conditions.

[5] Promotion depends upon daily work, monthly tests, and teachers' judgment.

[6] The number of graduates is approximated. Until the year 1896 graduating exercises of the usual type were held. In that year an address was given (Rev Dr. Henry Van Dyke, Democracy and Culture,) and diplomas presented without other participation of pupils, except that something of a valedictory character was said. See Seymour.

"I believe the prevailing method of admitting pupils to the high schools by a formal and stated examination . . . . might with advantage give way to a more rational method. . . . . Principals and teachers should recommend and should be held responsible for such recommendation."—[Extract from report of Superintendent Kendall.

[7] The Westville school has but one class pursuing high-school studies.

[8] Promotion on the word of the teacher. Examinations in full for any applicant who cannot furnish teacher's endorsement.

TABLE II—ORGANIZATION—CONCLUDED

TOWN	I. Hours						II. Admis'n			III. Work Done				IV. Appliances						V.	VI.	VII.
	A. M.			P. M.																		
	From	To	Recess—minutes	From	To	Recess,—minutes	Promotion in course	Examination of all applicants	Examination of strangers only	Is there a stated course	Are students fitted for college	Are diplomas given	Are graduating exercises held	Separate building	Laboratory,—Physical	Laboratory,—Chemical	Library,—volumes in	Collections of minerals, etc.	Worth of apparatus, $	Pupils,—No. from out of town	Graduates,—No. of	In what year were the graduation exercises first held
Plymouth	9	11.45	0	1.15	3.45	0	no	yes	...	no	no	no	no	no	no	no	....	no	0	..	0	....
(Dist. No. 1) (Terryville)[1]	9	11.45	0	1.15	3.45	0	yes	no	yes	yes	no	no	yes	no	no	no	200	no	0	0	5	1895
Portland[2]	9	11.30	0	1	3.30	0	no	yes	...	no	...	yes	yes	no	no	no	....	no	10	..	....	...
(Gildersleeve) (District 2)[3]	9	11.30	0	1	3.30	0	yes	no	yes	yes	yes	yes	yes	no	yes	yes	525	.....	250	..	....	1893
Putnam[4]	8.45	1	0	0	0	0	no	yes	...	yes	yes	yes	yes	no	yes	yes	500	yes	....	12	....	1874
Salisbury[5] (Lakeville)	9	12	0	1.15	3.30	0	yes	no	...	no	no	yes	yes	...	no	no	32	.....	....	1	4	1894
Saybrook	9	11.45	0	1	3.30	0	yes	no	yes	yes	no	yes	yes	no	no	no	1000	yes	100	13	67	1887
Seymour[6]	9	1.30	15	....	....	..	yes	no	...	yes	yes	yes	no	no	no	no	405	yes	200	..	...	....
Southington[7]	9	2.15	30	0	0	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	250	small	1000	1	147	1874
So. Windsor (Wapping)	9	12	..	1.15	4	..	no	yes	...	...	no	...	...	yes	no	no	100	no	....	..	....	....
(Town)	9	12	10	1.15	4	5	no	yes	...	yes	no	...	...	no	no	no	170	no	0	..	....	1897
Stafford[8]	9	12	10	1.15	4	10	yes	no	yes	yes	yes	yes	yes	no	no	no	1485	.....	100	3	66	1886
Stamford	9	1.30	20	0	0	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	805	yes	450	6	147	1881
Stonington																						
(Dist. No. 3)	....	.....	..	....	....	..	no	yes	...	...	no	...	...	no	no	no	....	.....	....	..	....	....
(Boro', 9 Dist.)	9	12	15	1.15	4	15	no	yes	...	no	no	yes	yes	no	no	no	50	yes	....	2	17	1890
(District 18)	9	12	15	1.45	4	15	no	yes	...	yes	no	yes	yes	no	no	no	....	yes	75	2	40	1889
Stratford	9	12	15	1.30	3.30	0	yes	no	...	...	no	yes	yes	no	no	no	61	no	....	0	89	1887
Thomaston	9	11.45	0	1.30	3.45	0	no	yes	...	yes	yes	yes	yes	no	no	no	165	yes	....	2	34	1887
Torrington	8	1	20	0	0	0	yes	no	yes	yes	yes	yes	yes	no	yes	yes	1000	yes	....	..	65	1889
Vernon	9	12	5	1.15	3	0	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	1500	yes	600	39	196	1873
Wallingford	9	11.45	0	1.15	3.30	0	yes	no	yes	yes	yes	yes	yes	no	yes	yes	50	no	150	0	66	1886
Waterbury[9]	9	11.45	..	1.30	4	..	yes	...	...	yes	yes	yes	yes	yes	yes	yes	250	yes	900	3	304	1879
West Hartford[10]	9	12	15	1.15	4	0	no	yes	...	yes	yes	yes	yes	no	yes	yes	....	no	100	3	39	1888
Wethersfield	9	12	15	1	3.30	0	yes	...	...	yes	no	...	...	no	yes	yes	....	.....	....	..	....	....
Windham	....	.....	..	....	....	..	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	573	...	.. .	20	....	1871
Windsor Locks	9	12	15	1.30	3.45	0	no	yes	...	yes	no	yes	yes	no	no	no	362	yes	50	2	13	1895

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[1] From lack of teaching force, and not from any lack in the course, pupils are not carried as far as to college doors.

[2] There were no graduates in 1896. The course is to be lengthened from three to four years. At least one pupil has gone direct to college.

[3] Out of thirty parents, twenty pay tax. Of seven graduates in 1896, four have returned to the school for further study, two have gone to a business college, and one is in a normal school.

[4] For 28 weeks there are two sessions daily; for 12 weeks (winter) there is one session daily; the question was asked and answered during the winter.

[5] Promotions on recommendation of teacher.

[6] Seymour holds no graduation ceremony. At the close of the year the school authorities visit the schoolroom, and in the presence of teachers and pupils hand diplomas to those who have earned them. The ostentation of dress, and the consequent embarrassment to the purses of poorer parents, the strain upon the nervous energy of pupil and teacher, and, perhaps, the possible harm to the moral nature of the child from overpraise, are the chief motives for the abolition of the graduation exercises. See New Haven.

[7] Greek is not taught in course, but pupils college-bound are taught it without school hours.

[8] Forty-four parents out of 68 pay tax. About 600 books out of the number given belong distinctively to the high school.

[9] There is also a botanical laboratory arranged for in the new building. The Waterbury Traction Company transports pupils at three cents per ride for 60 minutes before and after closing of school, and also between the hours of 11.30 and 2.

[10] The amount of apparatus is about to be largely increased.

Science

TABLE III.

In most cases the figures show the number pursuing the subjects at the time the report was made. If a subject is to appear at a future time and is elective, an estimate is made, or the number for the previous year given ; and if the subject is simply in the course with no probability of the formation of classes, no figures are given but the subject is counted as one of the subjects of the school.

It follows that the number actually studying these subjects at any time is less than the figures. The figures represent what has been done or is "going" to be done.

Physiology, number of schools	22
" studying	637
Physical Geography, number of schools	33
" studying	837
Botany, number of schools	32
" studying	413
Chemistry, number of schools	30
" studying	587
Physics, number of schools	47
" studying	275
Astronomy, number of schools	21
" studying	208
Zoölogy, number of schools	8
" studying	259
Geology, number of schools	16
" studying	175

TABLE III — SCIENCE

TOWN	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY Physical	LABORATORY Chemical	Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for
Ansonia	4	1	35	35	Physical Geography	Maury....	6 6	5 2	40 40	60 60	....	....	....	....	....	..
					Botany	Gray	6	3	40	60	....	....	....	....	....	..
	..	2	17	17	Botany	Gray	12	5	40	....	...	....	..	....	....	..
					Chemistry	Remsen	28	5	40	....	....	....	....	....	....	..
	..	3	9	9	Physics	Hall & B.	28	5	40	....	....	....	....	...	....	..
	..	4	10	6	Chemistry	Remsen	28	5	40	....	....	....	...	yes	yes	n
Bethel[1]	3	1	25	25	Physiology	Blaisdell	12	5	35	50	60	....	....	....	....	..
	..	..	....	13	Physical Geography	Appleton	16	5	45	90	30	....	....	....	....	..
	..	2	23	8	Physics	Steele	16	5	45	60	90	...	....	....	....	..
	..	..	.	7	Astronomy	Steele	12	5	45	60	....	....	....	....	...	..
	..	..	....	10	Chemistry	Steele	28	5	40	60	120	....	....	..	....	..
	..	3	10	4	Chemistry	Steele	16	5	45	90	150	no	no	....	no	n
Branford[2]	3	1	14	....	Physics	Cooley	....	4	40	60	....	....	....	....	....	..
	..	2	11	0	....	....	....	..	....	....	....	....	....	....	....	..
	..	3	9	....	Chemistry	Cooley	....	5	45	60	....	....	yes	....	....	..
Bridgeport[3]	4	1	157	157	Zoölogy	Cooper	20	4	40	60	....	....	....	....	....	..
	..	..	....	....	Physiology	....	20	4	40	60	....	....	...	....	....	..
	..	2	76	76	Physical Geography	Eclectic	20	4	40	60	....	....	....	....	....	..
	..	..	....	....	Geology	....	20	4	40	60	....	....	....	...	....	..
	..	3	53	....	Physics	Gage	40	4	40	60	....	....	....	...	....	..
	..	..	....	....	Botany	Gray	20	4	40	60	....	....	....	....	....	..
	..	4	50	....	Chemistry	....	40	4	40	60	....	....	....	....	....	..
	..	..	....	....	Domestic Science	....	20	4	40	60	....	....	....	....	....	..
	..	..	....	....	Botany	....	20	4	40	60	....	....	...	....	....	..
	..	..	....	....	Astronomy	....	20	4	40	60	....	yes	yes	yes	....	..
Bristol	4	1	42	38	Element'y Science	None	14	4	40	60	....	....	....	....	...	..
	..	2	18	17	Physics	Gage	40	5	40	60	....	....	....	....	...	..
	..	3	21	16	Astronomy	Sharpless	10	5	40	60	....	....	....	....	....	..
	..	4	16	8	Chemistry, Bot'ny	None	40	5	40	45	40	....	....	....	....	..
Canton[4]	4	1	30	0	....	....	....	....	....	....	....	....	....	....	....	..
	..	2	9	9	Botany	Gray	20	5	35	60	60	....	....	...	....	..
	..	3	14	14	Physical Geography	Tarr. Tarr.	28	5	35	90	....	....	..	....	....	..
	..	..	....	....	Physiology	Blaisdell	14	5	30	60	....	....	....	....	...	..
	..	4	11	11	Physics	Gage	26	5	35	90	....	no	no	no	no	no
Cromwell	2	1	8	8	Physiology	Hutchinson	36	5	60	60	....	....	..	....	...	..
	..	2	5	5	Physical Geography Botany	Maury Gray	20 16	5 4	60 60	60 60	....	no	no	no	no	no

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[1] The apparatus consists chiefly of articles which may be made use of in performing simple chemical periments. A compound microscope, an orrery, and a planetarium have recently been presented. There i astronomical chart costing sixty dollars.

[2] A room in the attic, though not designed by the architect as a laboratory, has been furnished with che constructed tables at which pupils are able to perform many chemical experiments. The committee furnish good supply of chemicals; water is at hand and a valuable means of real instruction is thus cheaply provi The apparatus for instruction in physics, while not extensive, is in repair and usable — air pumps, electrical chine, dynamo, and others in the collection. The teaching aims to make experiments lead. Pupils go to tex supplement experiments. In rooms below the High School there is oral teaching of science of an elemen character.

[3] In addition to the chemical and physical laboratories, a room has been fitted up for biological research this room are microscopes and other apparatus for first-hand study of life as seen in the lower organisms. In study of geology much field work is done and collections made. In chemistry every pupil is required to exp ment. The course in domestic science has just been established and may itself be called an experiment. numbers taking the courses in science in the third and fourth year cannot well be given because of the recen arrangement of the courses.

[4] The scant and antiquated apparatus is kept in a cupboard and removed once or twice yearly to perf a few experiments. The text-book leads, but enterprising and interested pupils sometimes perform some ex iments, and visit the neighboring manufactories to inspect machinery. There are three serviceable magnif glasses for use in the dissection of flowers.

TABLE III—SCIENCE—CONTINUED

TOWN	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY		Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work	Is drawing made an essential part of the course	Estimated worth of apparatus, dollars
												Physical	Chemical					
bury[1]	3	1	51	....	Physiology	Blaisdell	16	5	40	60	....	....	....	....	....	....	....	.....
	..	..	....	....	Physics	....	24	5	40	60	....	....	....	....	....	....	....	.....
	..	2	26	....	Chemistry	Shepard......	28	5	40	60	....	....	....	....	....	....	....	.....
	..	..	....	....	Botany	Wood	12	5	40	60	....	....	....	....	....	....	....	.....
	..	3	25	....	Geology	Shaler........	....	...	40	60	....	....	....	....	....	....	....	.....
	..	..	....	....	Astronomy	....	....	....	40	60	....	no	no	....	no	no	....	500
by[2]	4	1	20	0	....	....	....	..	....	....	....	....	....	....	....	....	....	.....
	..	2	16	0	....	....	....	....	....	...	....	....	...	....	..	....	....	.....
	..	3	12	0	....	....	....	....	....	....	....	...	...	....	....	....	....	.....
	..	4	1	....	Physics	Gage..........	....	5	40	90	....	...	....	....	...	no	...	.....
	..	..	....	..	Botany	Gray	24	2½	40	90	...	no	no	..	...	no	...	50
Hartford...	3	1	15	15	Physiology	Walker.......	20	5	35	90	..	....	....	....	....	....	....	.....
	..	.	....	15	Physical Geography	Appleton.....	16	5	....	....	....	....	....	....	.	....	....	.....
	..	2	21	21	Physical Geography	Appleton.....	16	5	....	....	....	....	....	....	..	....	....	.....
	..	..	....	21	Physics	Appleton.....	20	5	....	...	...	....	....	....	..	....	....	.....
	..	3	7	7	Physics	Appleton.....	20	5	....	...	...	....	....	....	....	....	....	.....
	..	..	....	....	Botany	Bergen.......	16	5	....	....	....	no	no	yes	yes	....	yes	.....
eld..........	4	1	27	13	Physical Geography Botany	Maury.... Gray	20	5	45	60	....	...	....	....	....	....	....	.....
	..	2	13	3	Zoölogy,	Colton........	26	5	45	60	....	....	....	....	....	....	....	.....
					Physiology	Hutchinson...	14	5	45	60	....	....	....	....	....	....	....	.....
	..	3	10	...	Astronomy	Sharpless and P.	16	5	45	60	....	....	....	....	....	....	....	.....
	..	..	...	....	Physics	Gage	24	5	45	90	....	....	....	....	....	....	...	.....
	..	3	7	....	Chemistry	Williams and S.	30	5	45	60	....	....	....	....	....	....	....	.....
	..	4	7	...	Geology	Dana	10	5	45	60	....	yes	....	yes	very lit.	no	yes	150
mington.....	3	1	17	0	....	....	....	..	....	....	....	....	....	....	....	....	....	.....
enter)........	..	2	19	19	Physical Geography	Warren	20	5	20	60	....	....	....	....	....	....	....	.....
	..	3	5	5	Physical Geography	Warren	10	5	20	60	....	....	....	....	....	....	....	.....
	..	..	....	5	Physics	Steele	26	5	20	90	....	no	no	no	no	no	....	.....
mington	4	1	21	21	Botany	Gray...... ..	13	5	40	30	...	....	....	....	....	....	....	.....
nionville)...	..	2	14	14	Chemistry	Gray.........	13	2½	40	30	....	....	...	....	....	....	....	.....
	..	3	13	13	Physics	Gage.........	20	2½	40	....	....	....	....	....	....	....	....	.....
	..	4	10	0	....	....	....	....	....	....	....	no	no	yes	no	no	no	50
enwich[3]	3	1	29	7	Physical Geography	Mitchell......	16	5	45	90	....	....	....	....	....	....	....	.....
	..	2	12	7	Botany	Gray..........	24	5	45	90	....	....	....	....	....	....	....	.....
	..	3	16	4	Physics	Avery.........	40	4	45	90	240	no	yes	yes	a lit.	no	....	30

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[1] The facts that the school is forced to occupy rented quarters, and that there are as yet but three years in course militate against extended science work. Considering these hindrances a good amount of laboratory k has been done. The school session closes at one o'clock and some pupils have voluntarily returned in the rnoon to make experiments. Though there is, properly speaking, no laboratory, yet the science recitation-n has been utilized for pupils' experimental work to a degree. As to class-work there is real observation and text-conning merely. In physiology, for instance, there were shown the circulation of blood in a frog's foot, cimens of heart and lungs, the flexibility and brittleness of bones, and different kinds of joints. In botany the roscope is used, papers are written, drawings made. In astronomy the heavens are observed as far as the unsted eye can go. There are cases of minerals belonging to the school, and pupils form private collections le studying.

[2] While there is no laboratory, water and gas are obtainable in the little recitation-room. Science comes ie senior year when the classes are naturally small. Part of the seniors go to college and do not take physics. otany there is analysis of flowers.

[3] The fourth-year class is not yet formed, the subjects to be taken up in that year are chemistry, geology, onomy. There is a collection of minerals, costing $1,500, a meteoric stone, costing $450; total, $1,950. The sical laboratory is small; purchases have but just begun.

TABLE III — SCIENCE — CONTINUED

TOWN	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY		Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work
												Physical	Chemical			
Guilford[1]	4	1	11	0	....	....	....	...	....	....	...	....	....	....	....	...
	..	2	10	10	Phys. Geography	Maury	16	5	35	45	0	....	....	....	....	...
	..	..	....	10	Physiology	Blaisdell	14	5	35	45	0	....	....	....	....	...
	..	..	....	10	Botany	G. "How Plants Grow"	6	5	35	45	....	....	....	....	....	...
	..	3	14	14	Physics	Gage	38	5	35	60	....	....	....	....	....	...
	..	4	5	0	Chemistry	Steele	...	....	....	....	....	...	....	....	....	...
	..	..	....	5	Astronomy	Young	14	5	35	60	....	....	....	....	....	...
	..	..	...	5	Geology	Steele	14	5	35	60	....	no	no	....	yes	no
Hartford[2]	4	1	285	0	....	....	....	....	....	....	....	....	....	....	....	...
	..	2	166	92	Science	....	16	5	45	....	90	....	....	...	....	...
	..	3	122	23	Science	....	40	5	45	....	90	....	....	....	....	...
	..	4	115	95	Science	....	40	5	45	....	90	....	....	....	....	...
Huntington[3]	4	1	16	16	Physical Geography	Maury	36	5	35	60	....	....	....	....	....	...
(Shelton)	..	2	4	0	....	....	....	....	..	....	....	....	....	...	....	...
(Ferry)	..	3	8	0	....	....	...	....	....	....	....	....	....	....	....	...
	..	4	7	....	Physics	Steele	38	5	35	60	....	no	no	no	no	no
Killingly[4]	4	1	24	0	....	....	....	....	....	....	....	....	....	....	....	...
(Danielson)	..	2	15	16	Physics	....	28	....	40	90	....	...	....	....	....	...
	..	3	16	10	Geology	....	16	....	40	90	....	....	....	....	....	..
	..	..	....	....	Chemistry	....	22	....	40	90	....	....	....	....	....	...
	..	4	8	....	Botany	....	....	....	40	90	....	no	yes	yes	no	no
Litchfield[5]	4	1	16	...	....	....	....	....	....	....	....	....	....	....	....	...
	..	2	12	....	....	....	....	..	....	...	....	....	....	....	....	..
	..	3	7	....	....	....	....	....	....	....	....	....	....	....	....	...
	..	4	7	....	....	....	....	....	....	....	...	....	....	....	....	...
Madison[6]	4	1	5	3	Phys. Geography	Maury	18	4	15	30	....	....	...	....	....	...
	..	2	7	2	Physiology	Steele	36	3, 4	15	45	....	....	....	....	....	...
	..	3	2	4	Physics	Steele	36	4	15	45	....	....	....	...	....	...
	..	4	6	5	Astronomy	Steele	....	3	15	45	....	....	....	....	....	...
	..	..	....	5	Chemistry	Remsen	15	3	15	30	....	....	....	....	....	...
	..	..	....	5	Botany	Gray	10	3	15	30	....	no	no	no	no	no
Manchester[7]	4	1	23	23	Physics	Gage	38	5	40	90	....	....	....	....	....	...
	..	2	26	23	Chemistry	Steele	38	5	40	90	....	....	....	..	....	...
	..	3	14	21	Geology	Heilprin	14	5	40	90	....	....	....	....	....	...
	..	4	9	0	....	....	....	....	....	....	....	....	....	....	....	...
Meriden	4	1	114	114	Physiology	....	22	....	40	....	....	....	....	....	....	...
	..	..	....	114	Phys. Geography	....	18	....	40	120	....	....	....	....	....	...
	..	2	88	54	Physics	....	40	5	40	120	....	....	....	....	....	...
	..	3	50	22	Chemistry	....	40	....	40	....	....	....	....	....	....	...
	..	4	33	....	Astronomy	....	18	....	40	....	....	....	....	....	....	...
	..	..	....	....	Geology	....	22	....	40	....	....	....	....	....	....	...

[1] There is no laboratory though there is a room which might be so furnished. The apparatus is chief illustrate the laws of physics, and consists of a Grenet battery, Leyden jars, air-pump, plate electrical mach and smaller articles. There is little, if any, chemical apparatus. In the senior year chemistry is elective; ast omy and geology are required, except from those in the classical course.

[2] The science consists of the usual branches, and is found in varying amounts in each of the four cou the College-Preparatory alone excepted. One or more recitation periods (45 minutes) are to be spent per we laboratory work; credit for two such periods is given in the tabular presentation. For more definite statem consult the course of study of the school.

[3] In connection with physical geography there are experiments on the air, magnetism; the air-pump is u In the study of physics the pupils are not as a rule required to make experiments; the apparatus is kept in a recitation room which is too small to allow of neophytic experimentation. Class was taken to power-hous street-railway company to see a dynamo. Apparatus consists in part of air-pump, electrical machine, induc coils, cell batteries, small motor.

[4] Elementary science is taught in grades below the high school.

[5] Owing to a change in the principalship and failure to secure data no report is attempted.

[6] Hereafter botany will come in third year; other changes will be made.

[7] Besides the authors named there are many other books to which pupils are referred by their instru In the first year all must take science. In the second year all, except Greek pupils, must take it.

TABLE III — SCIENCE — CONTINUED

TOWN	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per week in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY		Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work	Is drawing made an essential part of the course	Estimated worth of apparatus, dollars
												Physical	Chemical					
dletown[1]....	4	1	72	72	Physiology,	Martin.......	16	5	45	60	....	....	....	....	....	....	....	.....
					Physical Geog.	Guyot........	12	5	45	60	....	....	....	....	....	....	....	.....
					Botany	Gray.........	10	5	45	60	....	....	....	....	....	..	....	.....
	..	2	62	62	Physics	Gage.........	38	5	45	60	....	....	....	....	....	....	....	.....
	..	3	38	38	Zoölogy,	Packard......	19	5	45	60	....	....	....	....	....	....	....	.....
					Chemistry	Shepard......												
	..	4	41	13	Geology	Le Conte.....	19	5	45	60	....	...	....	....	....	..	....	.....
	..	..	....	....	Astronomy	Sharpless & P	19	5	45	60	....	yes	yes	yes	no	no	yes	2,000
ford..........	3	1	21	0	....	....	....	....	....	....	....	....	....	....	...	....	....	.....
	..	2	24	24	Physical Geography	Eclectic......	29	5	30	45	....	....	....	....	....	....	....	.....
	..	3	9	9	Physical Geography	Eclectic......	9	5	30	45	....	....	....	....	....	....	...	.....
	..	..	....	9	Physics	Carhart and C.	29	5	30	45	....	....	....	....	....	....	....	.....
	..	..	....	9	Botany	G. "How Plants Grow"	9	5	30	45	....	no	no	no	....	no	....	.....
ugatuck[2].....	4	1	37	....	Physical Geography	....	20	5	45	90	....	....	....	....	....	....	....	....
	..	2	15	....	Zoölogy	....	20	5	45	90	....	....	....	....	....	....	....	.....
	..	..	....	....	Botany	....	20	5	45	90	....	....	....	....	....	....	....	.....
	..	3	15	....	Physics	....	20	5	45	90		....	....	....	....	....	....	.....
	..	..	....	....	Chemistry	....	20	5	45	90	....	....	....	....	....	....	....	.....
	..	4	5	....	Astronomy	....	20	5	45	90	....	...	....	....	....	....	....	.....
	..	..	....	....	Geology	....	20	5	45	90	..	yes	yes	....	....	...	....	500
w Britain[3]....	4	1	102	102	Experiments	None.........	40	2	45	....	....	....	....	....	....	....	....	.....
	..	2	73	62	Physics	Carhart and C.	40	4	45	60	....	....	....	....	....	....	....	.....
	..	3	53	46	Chemistry	Shepard.. ...	40	4	45	45	...	....	....	....	....	....	....	.....
	..	4	34	21	Astronomy, Geol.	....	20	4	45	60	....	yes	yes	yes	no	no	yes	1,400
w Canaan....	2	1 2	13 5	18	Physics	Shaw.........	....	....	30	30	....	no	no	no	....	no	....	.....
w Hartford[4].	3	1	6	0	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
	.. ..	2 3	4 7	11	Physiology	Blaisdell.....	15	2	30	30	....	no	no	....	no	no	....	5
w Haven[5].... ty Sch. Dist.)	4	1	220	0	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
	..	2	219	92	Botany	Gray or Berg.	20	....	40	75	....	....	....	....	....	....	....	.....
	..	..	....	....	Zoölogy	Hall & Berg'n	20	....	40	75	....	....	....	....	....	....	....	.....
	..	..	....	....	Chemistry	....	..	....	..	..	..	....	....	....	....	....	...	.....
	..	3	171	74	Physics	....	40	..	40	75	....	....	....	....	....	....	....	.....
	..	4	138	51	Geology, Physical Geography Astronomy	Dana, Maury, Young	40	....	40	75	....	yes	yes	yes	....	....	....	.....
w Haven[6].... Boardman Manual Training School)...	4	1	....	....	Physical Geog.	....	20	4	....	....	....	....	....	....	...	....	....	.....
	..	..	....	....	Botany	....	20	4	....	....	....	....	....	....	....	....	....	.....
	..	2	....	....	Chemistry	....	40	4	....	....	....	....	....	....	....	....	....	....
	..	3	....	....	Physics	....	40	4	....	....	....	....	....	....	....	....	....	...
	..	..	....	....	Mechanics	....	40	4	....	....	....	....	....	....	....	....	....	.....
	..	..	...	....	Domestic Science	....	40	3	....	....	...	....	....	....	....	....	....	.....
	..	4	....	....	Electricity	....	40	4	....	....	....	....	....	....	....	....	....	.....
	..	..	....	....	Biology	....	40	4	....	...	....	...	....	....	...	....	....	.....
ew Milford....	2	1 2	13 3	....	Physical Geography	....	....	....	....	....	....	....	....	....	...	....	....	.....
rth Canaan...	2	1	7	0	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
	..	2	15	15	"Common Things"	Avery........	....	2	45	60	....	no	no	....	....	....	....	.....

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[1] Well equipped laboratory; good apparatus.

[2] The school year of 40 weeks is divided into semesters.

[3] The work of the first year will be to teach pupil to depend upon himself and not upon his book. The ta- e shows what is coming rather than what as yet fully exists.

[4] About once a week for twenty weeks the whole school has elementary science; the State Course is fol- wed. Physics (Steele) is taken when class remains to graduate.

[5] Owing to the large number of classes and the overlapping courses, a tabulated statement of the work difficult. Those who desire a more detailed statement will do well to study the last report of the superintend- t. There is laboratory work, but the probable time so spent we are unable to give.

[6] A part only of the science work is given in this tabulation. For the complete course, including drawing d other manual work, see catalogue.

TABLE III — SCIENCE — CONTINUED

TOWN	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY Physical	LABORATORY Chemical	Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work
Old Saybrook[1]	3	1	11	11	Physiology	Blaisdell	10	5	30	30	....	....	....	....	....	...
	..	..	....	11	Physical Geography	Maury	30	5	30	30	...	....	....	....	....	...
	..	2	4	0	....	....	....	....	....	....	...	....	....	....	....	...
	..	3	6	6	Physics	Cooley	40	5	30	30	30	no	no	....	no	no
Orange[2]	2	1	20	....	Physics	State Manual	38	1	45	0	0	....	....	....	....	...
(West Haven)	..	2	26	....	Physics	Steele	38	2	45	....	....	no	no	....	no	no
Plainville[3]	3	1	15	15	Physiology	Huchinson	16	5	35	60	....	....	....	....	....	...
	..	..	....	15	Physical Geography	Warren	24	5	35	60	....	....	....	....	....	...
	..	2	16	3	Physical Geography	Warren	24	5	35	60	....	....	....	....	....	...
	..	3	6	4	Physics	Avery	24	5	35	60	....	no	no	....	yes	no
Plymouth	3	1	7	....	Nothing	....	....	....	....	....	....	....	....	....	....	...
(District 1)	..	2	5	....	Nothing	....	....	...	....	....	....	....	....	....	....	...
	..	3	15	9	Physical Geography	Butler	38	5	20	25	....	no	no	no	no	no
Plymouth	3	1	15	15	Physiology	Steele	18	5	30	60	....	....	....	....	....	...
(Terryville)	..	..	....	....	Physical Geography	Mowry	18	5	30	60	....	....	....	....	....	...
	..	2	11	11	Geology	Steele	18	5	30	60	....	....	....	....	....	...
	..	..	....	....	Botany	How Plants Grow	18	5	30	60	....	....	....	....	....	...
	..	3	7	7	Physics	Gage	18	5	30	120	....	....	....	....	....	...
	..	..	....	....	Astronomy	Steele	18	5	30	90	....	no	no	no	no	no
Portland[4]	3	1	10	16	Physiology	Tracy	38	....	....	....	....	....	....	....	....	...
(Gildersleeve)	..	2	3	....	None	....	....	....	....	....	....	....	....	....	....	...
	..	3	6	6	Geology	Dana	16	5	35	60	....	....	....	....	....	...
	..	..	....	....	Astronomy	Young	12	5	35	60	....	no	no	no	no	no
Portland[5]	4	1	12	12	Physical Geography	Geikie	20	3	40	90	...	....	....	....	....	...
	..	..	....	....	Botany	Gray	20	3	40	90	....	...	....	....	....	...
	..	2	8	6	Physics	Gage	40	4	40	90	....	yes	yes	yes	....	no
	..	3	7	0	....	....	....	....	....	....	....	....	....	....	....	...
	..	4	5	....	....	....	....	....	....	....	....	....	....	....	....	...
Putnam[6]	4	1	30	....	Physical Geography, Physiology	....	24	4	40	90	....	....	....	....	....	...
	..	2	13	5	Natural Philosophy	....	....	....	....	....	....	....	....	....	....	...
	..	3	18	3	Chemistry	....	24	....	40	90	...	....	....	....	....	...
	..	4	14	....	Astronomy	....	24	....	40	90	....	....	....	....	....	...

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[1] In physics ten weeks of experiments precede the study of the text. Pupils have note-books in which record results and inferences. There is little apparatus ; a few pieces of apparatus have been made by pupil

[2] The high school course is to be lengthened by a year when botany will be added. There have necessa been few experiments ; there has been little study of lessons ; the object has not been to give informatio much as to give the ability to think causatively.

[3] In the teaching of physics experiments are given as far as conveniences allow. The apparatus consis a small battery, air-pump, Leyden jars, and the like.

[4] It is proposed to lengthen and strengthen the course. A class of grammar-school grade sits in the h school room and recites with high-school pupils.

[5] At present owing to re-arrangement of the course, there is no work doing in science in the third and fo years but geology, astronomy, and chemistry are to be added. There is a serviceable chemical laboratory fi up in the basement, and another room with good apparatus for illustration in physics. A geological cabinet been begun.

[6] Physiology is given only in general talks ; no work is required of pupils. There should be ano teacher.

TABLE III — SCIENCE — CONTINUED

TOWN	No. years in course	What year of course	No. pupils in this school	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY Physical	LABORATORY Chemical	Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work	Is drawing made an essential part of the course
sbury[1]...........	3	1	21														
akeville)........	..	2	2	31	"Science"	Morrill.......	40	4	30	30	....	no	no	....	....	....	yes
	..	3	8														
brook[2]	3	1	23	23	Natural Philosophy	....	24	....	....	....	....	....	....	....	....	....	....
eep River).......	..	..	....	....	Chemistry	....	14	....	30	30	....	....	....	....	....	....	....
	..	2	8	8	Botany	....	14	....	30	30	....	....	....	....	....	....	....
	..	3	9	....	....	....	....	....	....	....	....	no	no	no	....	....	....
mour[3].............	4	1	13	....	Nothing	....	....	....	....	....	....	....	....	....	....	....	....
	..	2	6	6	Physics	Gage.........	24	5	40	60	0	....	....	....	....	....	....
	..	3	9	9	Physiology	Stowell.......	24	5	30	60	0	....	....	....	....	....	....
	..	4	7	7	Botany	Gray.........	14	5	60	60	300	....	....	....	....	....	....
	..	..	....	7	Astronomy	Young........	14	5	30	60	0	....	....	....	....	....	....
	..	..	....	7	Geology	....	12	5	30	60	0	no	no	no	....	no	....
thington..........	4	1	38	17	Physical Geography	Appleton.....	26	5	40	45	....	....	....	....	....	....	....
	..	..	....	38	Physiology	Walker.......	10	5	40	45	....	....	....	....	....	....	....
	..	2	38	38	Physiology	Walker.......	14	5	40	45	....	....	....	....	....	....	....
	..	..	....	21	Botany	....	22	5	40	60	....	....	....	....	....	....	....
	..	3	26	26	Physics	....	36	5	40	60	....	....	....	....	....	....	....
	..	4	33	31	Chemistry	....	26	5	40	45	....	....	....	....	....	....	....
	..	..	....	13	Geology or Astronomy	....	10	5	40	60	....	yes	yes	yes	no	....	no
th Windsor[4].....	3	1	5	5	Physical Geography	Warren......	....	....	25	50	....	....	....	....	....	....	....
	..	..	....	....	Botany	Gray.........	....	....	25	50	....	....	....	....	....	....	....
Vapping).........	..	2	4	4	Physics	Steele........	....	....	25	50	....	....	....	....	....	....	....
	..	3	8	8	Chemistry	White........	....	....	25	50	....	no	no	....	....	....	....
th Windsor.......	3	1	6	0	....	....	....	....	....	....	....	....	....	....	....	....	....
own)............	..	2	6	8	Botany	Gray.........	10	5	25	90	....	....	....	....	....	....	....
	..	3	3	....	Physics	Avery........	26	5	25	90	....	no	no	....	....	....	....
fford[5].............	4	1	19	19	Zoölogy	Burnette......	30	2	35	60	....	....	....	....	....	....	....
	..	..	....	19	Botany	Gray.........	6	2	35	90	....	....	....	....	....	....	....
	..	..	....	19	Physical Geography	Eclectic......	36	3	35	75	....	....	....	....	....	....	....
	..	2	25	21	Botany	....	8	3	35	90	....	....	....	....	....	....	....
	..	..	....	21	Physics	....	28	3	35	75	....	....	....	....	....	....	....
	..	3	13	1	Chemistry	....	26	3	35	75	....	....	....	....	....	....	....
	.	..	....	1	Geology	....	10	3	35	90	....	....	....	....	....	....	....
	..	..	....	5	Astronomy	Young........	36	2	35	75	....	....	....	....	....	....	....
	..	4	13	0	Nothing	....	....	....	....	....	....	....	....	....	....	....	....

[1] The whole school take science as one class. The State course is followed. The apparatus is largely home le, and while not highly valuable is really serviceable. Pupils all prepare note-books in which are illustrated criptions of experiments made and work done.

[2] The experiments are made by principal; entertainments given by school have raised over $600, which has n expended for apparatus. Pupils are much interested in science.

[3] Although there is no apparatus belonging to the school the principal has personally obtained, owns and uses ut $200 worth. He could not teach physics without apparatus. The teacher himself performs experiments, tries to make the experiment lead and not the text. In physiology dissections and experiments of a simple racter have been had; in botany no lesson is assigned from text-book which has not first been learned from it. Astronomy is taught objectively as much as possible; there is no telescope. There are some geological cimens, but the text rather than illustration leads the thought of pupils.

[4] There is some apparatus which was made by pupils; there is nothing to illustrate chemistry.

[5] There are special students, some of whom take science. While there is no laboratory the work is made, as as possible, objective.

TABLE III — SCIENCE — CONTINUED

TOWNS	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY		Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work	Is drawing made an essential part of the course
												Physical	Chemical				
Stamford	4	1	72	0	Nothing	....	....	....	....	....	....	....	....	....	....	....	....
	..	2	42	16	Zoölogy	....	20	3	45	....	....	....	....	....	....	....	....
	..	3	36	30	Physics	....	40	4	45	....	....	....	....	....	....	....	....
	..				Chemistry	....	20	4	45	....	....	....	....	....	....	....	....
	..				Botany	....	20	....	....	....	....	....	....	....	....	....	....
	..	4	24	14	Botany	....	40	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	Geology	....	20	3	45	....	....	....	....	....	....	....	....
	..	.	....	14	Astronomy	....	20	3	45	....	....	....	....	....	....	...	....
Stonington	3	1	10	0	....	....	....	....	....	....	....	....	....	....	....	....	....
(No. 3)	..	2	5	0	....	....	....	....	....	....	....	....	....	..	....	....	....
	..	3	7	....	Physics	Steele	....	5	30	60	....	....	....	....	....	...	...
Stonington[1]	3	1	18	18	Physical Geography	Maury	36	5	30	....	....	....	....	..	....	....	....
(No. 9)	..	2	7	7	Physiology	Steele	36	5	30	....	....	....	....	....	....	....	....
	..	3	7	7	Chemical Experiments	....	....	....	....	....	....	no	no	no	....	....	....
Stratford[2]	2	1	25	25	Experiments	....	....	....	....	....	....	....	....	....	....	....	....
	..	2	9	9	Experiments	....	....	....	....	....	....	....	....	....	....	....	....
Thomaston[3]	3	1	11	11	Physical Geography	....	14	5	40	60	....	....	....	....	....	....	....
	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Torrington[4]	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	4	1	....	....	Nothing	....	....	....	....	....	....	....	....	....	....	....	....
	..	2	....	....	Physics	....	....	5	....	....	....	....	....	...	....	....	....
	..	3	....	....	Botany	....	....	2, 5	....	....	....	....	....	....	....	....	...
	..	..	....	....	Chemistry	....	40	5	....	....	....	....	....	....	....	....	....
	..	4	....	....	Chemistry	....	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	Astronomy	....	....	....	....	....	....	yes	yes	yes	....	....	....
Vernon[5]	4	1	49	34	Physiology	Martin	14	....	40	90	....	....	....	....	....	....	....
	..	2	29	27	Physics	Gage	24	....	40	90	....	....	....	....	....	....	....
	..	..	....	27	Physical Geography	Appleton	12	....	40	90	....	....	....	....	....	....	....
	..	3	21	17	Chemistry	Shepard	14	....	40	90	....	....	....	....	....	....	....
	..	..	....	16	Geology	Dana	12	....	40	90	....	....	....	..	....	....	....
	..	..	....	14	Botany	Gray	10	....	40	90	....	....	....	....	....	....	....
	..	4	20	8	Astronomy	Young	14	....	40	90	....	yes	yes	yes	no	....	....
Wallingford[6]	4	1	21	....	Physics	....	40	3	40	....	....	....	....	....	....	....	...
	..	2	17	....	Physics	....	....	3	40	....	....	....	....	....	....	....	....
	..	..	....	....	Chemistry	....	....	5	40	....	....	....	....	....	....	....	....
	..	..	....	....	Botany	....	....	3	40	....	....	....	....	....	....	....	....
	..	3	8	....	Chemistry	....	....	5	40	....	....	....	....	....	....	....	....
	..	..	....	....	Physics	....	....	2	40	....	....	....	....	....	....	....	....
	..	4	10	....	Geology	....	....	3	40	....	....	....	....	...	....	....	....
	..	..	....	....	Physics	....	....	2	40	....	....	yes	yes	....	....	....	....

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[1] The lowest class is properly of the grammar grade. In connection with the study of physical geography minerals are studied objectively once weekly. In the third year chemical experiments as introductory to physics are had.

[2] Experiments performed by teacher.

[3] The course is in process of formation. Botany for 22 weeks will doubtless finish the first year, while Physics in the second and Chemistry in the third are pretty sure to follow. P. S. As re-arranged, Dec. 11, 1896, the subjects of physics, chemistry, botany, geology, zoölogy, physiology, astronomy appear.

[4] There are four courses, Classical, Scientific, English, and Business; no science occurs in the first. While the time devoted to experimentation cannot be given it is designed to make the science course especially strong. In physics and chemistry note-books are kept and conclusions carefully written out; there is a fine microscope and a telescope with a four-inch objective.

[5] There is a good supply of apparatus; there are about 300 labeled specimens of minerals; there is the beginning of a zoölogical museum. Pupils do not as a rule perform experiments in the physical laboratory; in the chemical laboratory all must do so.

[6] There are four courses; the repetition of subjects in the course is due to that fact. The subjects are taken from the recently adopted course of study.

TABLE III — SCIENCE — CONCLUDED

TOWN	No. years in course	What year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	How many weeks are given to subject	How many recitations per week	Recitations, how many minutes long	Probable time spent per day in preparing lessons, minutes	Probable time spent per week in making experiments, minutes	LABORATORY Physical	LABORATORY Chemical	Are pupils required to make experiments	Are pupils required to make pieces of apparatus	Are there tools and benches for manual work	Is drawing made an essential part of the course
Waterbury[1]	4	1	163	116	Physical Geography	....	20	5	45	90	....	....	....	....	....	....	....
	..	..	....	35	Botany	Bergen	12	5	50	45	....	....	....	....	....	....	....
	..	2	63	80	Chemistry	....	40	5	40	45	....	....	....	....	....	....	....
	..	3	40	37	Physics	....	20	5	40	75	....	....	....	....	....	....	....
	..	..	....	....	Geology	....	20	5	40	75	....	....	....	....	....	....	....
	..	4	10	....	Nothing	....	....	....	....	....	....	yes	yes	....	....	....	....
West Hartford	4	1	....	....	Physiology	....	20	4	40	....	....	....	....	....	....	....	....
	..	2	....	....	Physics	....	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wethersfield[2]	2	1	16	16	Experiments	Morrill	....	....	30	....	....	....	....	....	....	....	....
		2	8	8													
Windham	4	1	58	12	Physics	Gage	20	....	....	....	....	....	....	....	....	....	....
	..	2	37	26	Zoölogy	Colton	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	Physiology	Steele	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	Botany	Gray	....	....	....	....	....	....	....	....	....	....	....
	..	3	26	16	Chemistry	Shepard	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	Physics	Gage	....	....	....	....	....	....	....	....	....	....	....
	..	4	17	13	Geology	Shaler and D.	....	....	....	....	....	....	....	....	....	....	....
	..	..	....	....	Astronomy	Sharpless and P.	....	....	....	....	....	....	....	....	....	....	....
Windsor	4	1	20	....	Physiology	....	....	....	....	....	....	....	....	....	....	....	....
		2	17	....	...	....	....	....	....	....	....	....	....	....	....	....	....
		3	7	7	Physics	....	24	....	....	....	....	....	....	....	....	....	....
		4	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Windsor Locks	2	1	7	7	Physical Geography	Warren	39	5	30	....	....	....	....	....	....	....	....
	..	2	7	7	Physiology	Blaisdell	39	5	30	....	....	no	no	no	no	....	....

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[1] There is also a botanical laboratory.

[2] The State Course is followed. Some of the experiments are tried by the pupils after seeing the teacher perform them. The note-books of pupils show a good knowledge of experiments and principles involved, and a fair ability to use English. For science both classes are united into one.

English

TABLE IV.

Under this head are grouped Composition, Rhetoric, Grammar and " English," whatever that may mean.

It is quite impossible to summarize the meagre information given. The returns show that all pupils take " English " in some form at some time in the course.

Classifying the schools, which teach one or more of the above branches, and noting that not more than half give a whole year to the subjects, we find —

Number of	schools teaching Rhetoric	34
"	scholars in classes in Rhetoric	599
"	schools teaching English	23
"	scholars in classes in English	786
"	schools teaching Grammar	22
"	scholars in classes in Grammar	255

Classifying the schools which pursue the subject one year by the number of recitations a week, we find —

6	schools	require	one	recitation	a week
7	"	"	two	recitations	"
3	"	"	three	"	"
5	"	"	four	"	"
13	"	"	five	"	"

The number of schools teaching Composition is not given, because often Composition means that essays are occasionally written.

TABLE IV—ENGLISH—(COMPOSITION, RHETORIC, AND GRAMMAR)

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks pursued	No. periods per week	Length of periods (minutes)
Ansonia	4	1	42	0	English	Lockwood	28	5	40
....	....	2	31	0	....	....	....	....	....
....	....	3	13	0	....	....	....	....	....
....	....	4	10	0	....	....	....	....	....
Bethel[1]	3	1	25	25	Rhetoric	Genung	22	5	40
	....	....	....	25	Composition	....	40	1	....
	....	2	23	23	Composition	....	40	½	....
	....	3	10	10	Composition	....	....	....	....
Branford[2]	3	1	14	14	Figures of Speech	Lockwood	40	4	40
	....	2	11	11	Figures of Speech	Lockwood	40	4	35
	....	3	9	9	Figures of Speech	Lockwood	40	5	40
Bridgeport[3]	4	1	157	157	Rhetoric Prac. Ex. in English	Hill Buehler	40	2	40
	....	2	76	76	Rhetoric	Hill	40	2	40
	....	3	53	53	Essays and Declamations	....	40	....	....
	....	4	50	50	Essays and Declamations	....	....	....	....
Bristol[4]	4	1	35	0	....	....	....	....	....
	....	2	35	35	Grammar	Whitney and Lockwood	12	4	45
	....	....	....	35	Rhetoric	Hart	28	4	45
	....	3	25	0	....	....	....	....	....
	....	4	20	0	....	....	....	....	....
Canton[5]	4	1	31	31	Grammar	Maxwell	40	5	40
	....	2	9	....	Grammar	Buehler	....	....	....
	....	....	....	....	Rhetoric	Hill	20	5	35
	....	3	14	....	....	....	....	....	
	....	4	11	11	Rhetoric	Hill	40	5	40
Cromwell	2	1	8	8	Grammar	Lockwood	36	4	20
	....	2	5	5	Rhetoric	Genung	36	4	25
Danbury[6]	3	1	....	all	Rhetoric	Hill	28	5	40
	....	2	51	0	Nothing	....	....	....	....
	....	3	26	....	English Grammar Review	....	6	....	....
Derby[7]	4	1	20	20	Lessons in English	Lockwood	40	5	45
	....	2	16	16	Lessons in English Rhetoric Rhetoric	Lockwood Genung Buehler	40	2½	....
	....	3	12	....	....	....	....	....	....
	....	4	1	....	....	....	....	....	....

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[1] Once a week or oftener during first year, short compositions. Essays every two weeks during second year; these essays are corrected and read before class. During third year, more extended essay work, some of which are written several times over; one element in this essay work is preparation for graduation.

[2] No distinct text in rhetoric is used. The English literature is made a basis for inductive teaching. Compositions, oral and written, are had.

[3] English is required. In no course is it elective. Essays and declamations receive more attention, perhaps, in the two later years, but are incident to the entire course. Every essay in Senior and Junior year is read with teacher privately and before class-mates. Beside the two stated periods in which pupils meet teacher for class-work in the first two years, there is still another period in which they meet as a class for instruction but meet without preparation.

[4] There is regular drill in composition throughout the course.

[5] English Grammar is continued into second year if pupils do not take Latin or French. Composition and language exercises throughout the course. There are also occasional debates. The course is not rigid; a subject unfinished in any appointed year is continued the next year.

[6] Teachers endeavor to secure good English in written and oral work in all studies; as good results can be thus obtained as in the more formal study of English.

[7] Composition is continuous throughout the course. A feature of the composition work is daily five-minute exercises in the first year. In the second year more formal work is required, and this increases in difficulty to the end of the course.

TABLE IV — ENGLISH — (COMPOSITION, RHETORIC, AND GRAMMAR) — CONT.

TOWNS	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks pursued	No. periods per week	Length of periods (minutes)
East Hartford[1]	3	1	15	13	Rhetoric	Hill	36	5	35
		2	21	....	....	....	....	....	....
		3	7	....	....	....	....	....	....
Enfield	4	1	27	27	English Composition	Keeler and Davis	40	1	45
					Rhetoric	Hill	30	4	45
	....	2	13	13	English Composition	Keeler and Davis	40	1	45
	....	3	19	19	English Composition	Keeler and Davis	40	1	45
	....	4	7	7	English Composition	Keeler and Davis	30	1	45
	....	....	....	....	English Grammar	Any Text	10	2	45
Farmington[2] (Center)	3	1	17	17	Lessons	Hyde	36	5	20
	....	2	19	19	Higher English	Reed and Keeler	36	3	20
	....	3	5	....	Nothing	....	....	....	....
Farmington (Unionville)	4	1	21	21	Grammar	Green	40	3	30
	....	2	14	0	....	....	....	....	....
	....	3	13	13	Parsing and Analysis	....	15	2½	40
	....	4	11	0	....	....	....	....	....
Greenwich[3]	4	1	29	29	Studies in English Composition	Keeler and Davis	40	2	45
	....	2	12	12	Studies in English Composition	Keeler and Davis	40	1	45
	....	3	16	16	....	....	....	....	....
Guilford[4]	4	1	11	11	Grammar	Hyde	....	5	30
	....	2	10	10	Lessons in English	Lockwood	....	....	....
	....	3	14	0	....	....	....	....	....
	....	4	5	....	....	....	....	....	....
Hartford[5]	4	1	285	....	....	....	....	....	....
	....	2	116	....	....	....	....	....	....
	....	3	122	....	English Grammar	....	....	....	....
	....	....	....	....	Rhetoric	Hill	....	....	....
	....	....	....	....	Study of Words	Trench	....	....	....
	....	4	115	....	....	....	....	....	....
Huntington[6]	4	1	16	5	School English	Butler	36	5	35
	....	2	4	4	Rhetoric	Hart	36	5	35
	....	3	8	....	....	....	....	....	....
	....	4	7	....	....	....	....	....	....
Killingly[7] (Danielson)	4	1	24	24	Rhetoric	Hill, Welsh	38	5	40
	....	2	15	....	....	....	....	....	....
	....	3	16	....	....	....	....	....	....
	....	4	8	....	....	....	....	....	....

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[1] Much composition work.

[2] An effort is made to have one composition a month.

[3] Compositions on subjects derived from English literature.

[4] All write compositions on subjects assigned by principal. There are also language exercises.

[5] English Grammar is deferred until the Junior year, because it is a subject demanding some maturity of mind.

[6] Essay work throughout. Teacher and pupil confer beforehand on the work (composition) to be done. To secure individuality, compositions are written in the schoolroom, and from memory, or from memory assisted by notes.

[7] English in some form, chiefly compositions on books read throughout the course.

TABLE IV — ENGLISH — (COMPOSITION, RHETORIC, AND GRAMMAR) — CONT.

TOWNS	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks pursued	No. periods per week	Length of periods (minutes)
Madison	4	1	5	5	Grammar	Reed and Keeler	36	4	15
	....	2	7	2	Rhetoric	Hill	36	3	15
	....	3	2	0	....	....	....	....	....
	....	4	6	0	....	....	....	....	....
Manchester[1]	4	1	23	...	....	....	....	....	....
	....	2	26	....	....	....	....	....	....
	....	3	14	....	....	....	....	....	....
	....	4	9	....	....	....	....	...	....
Meriden[2]	4	1	....	40	Foundations of Rhetoric English Composition	Hill Buehler	....	....	....
	....	2	....	....	....	....	....	....	....
	....	3	45	....	....	....	....	....	....
	....	4	32	32	Rhetoric English Composition	Hill Buehler	10	....	....
Middletown	4	1	72	0	....	....	....	....	....
	....	2	62	0	....	....	....	....	....
	....	3	38	7	Rhetoric	Genung	38	3	25
	....	4	41	8	Rhetoric	Genung	38	3	25
Milford	3	1	21	21	Grammar	Hyde	38	5	30
	....	2	24	24	English Composition	Chittenden	38	4	30
	....	3	9	9	Rhetoric	Williams	29	5	30
Naugatuck[3]	4	1	37	37	Advanced Grammar Lessons in English	Maxwell, Lockwood or Hill	20	4	40
	....	2	15	17	Advanced Grammar Lessons in English	Maxwell, Lockwood or Hill	20	4	40
	....	3	14	0	....	....	....	....	....
	....	4	5	0	....	....	....	....	....
New Britain[4]	4	1	102	102	Lessons in English	Lockwood	40	2	45
	....	2	73	73	Composition	Lockwood	40	1	45
	....	3	53	53	Composition	Lockwood	40	1	45
	....	4	34	34	Composition	Lockwood	40	2	45
New Canaan[5]	2	1	13	13	Rhetoric	....	....	5	30
	....	2	5	5	....	....	....	....	....
New Hartford	3	1	6	6	Grammar	Tarbell	36	4	25
	....	2	2	0	Grammar	Tarbell	....	....	....
	....	3	7	7	Lessons in English	Lockwood	36	3	30
New Haven	4	1	220	220	Lessons in English	Lockwood	40	4	40
	....	2	219	219	Lessons in English	Lockwood	40	4	40
	....	3	171	....	....	....	....	....	....
	....	4	138	....	....	....	....	....	....
New Milford[6]	2	1	13	14	Lessons in English	Lockwood	....	5	30
	....	2	3	....	....	....	....	....	....
North Canaan[7]	2	1	7	7	Grammar	....	....	5	15
	....	2	15	15	Grammar	....	....	5	20

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[1] English is taught in connection with literature.

[2] Prizes are given for composition.

[3] English history preparing the way for English literature comes in third year. When Lockwood's book is finished in second year, the class becomes an essay class, which furnishes an essay once in about eight weeks.

[4] This course is in incubation. Many details not yet decided.

[5] Essays on authors are written.

[6] History of English language and composition are pursued.

[7] A feature of the English work is correction of errors in written work before the entire school.

TABLE IV — ENGLISH — (COMPOSITION, RHETORIC, AND GRAMMAR) — CONT.

TOWNS	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks pursued	No. periods per week	Length of periods (minutes)
Old Saybrook[1]	3	1	11	11	Grammar	Hyde	10	2	30
	....	....	....	11	Lessons in English	Lockwood	⅔ y	2	30
	....	2	4	4	Lessons in English	Lockwood	36	2	30
	....	3	6	0	....	....	....	....	....
Orange[2]	2	1	20	20	English	Butler	36	3	40
	....	2	26	....	....	....	....	....	....
Plainville	3	1	15	15	Rhetoric	Hart	14	....	45
	....	2	16	16	Rhetoric	Hart	14	....	....
	....	3	6	6	Rhetoric	Hart	14	....	....
Plymouth	3	1	7	7	English Grammar	Hyde	38	5	20
	....	2	5	5	English Grammar	Hyde	7	5	20
	....	....	....	5	Rhetoric	Butler	31	5	20
	....	3	15	10	Rhetoric	Butler	10	3	20
Plymouth.	3	1	15	15	Lessons in English	Lockwood	38	5	30
(Terryville)	....	2	11	11	Rhetoric	....	30	5	30
	....	3	7	7	....	....	....	....	....
Portland	3	1	10	10	Lessons in English	Lockwood	40	5	35
(Gildersleeve) No. 1	....	2	3	3	Lessons in English	Lockwood	24	5	35
	....	3	6	6	Rhetoric	Hill, D. J.	40	2	40
Portland	4	1	12	12	Lessons in English	Lockwood	20	1	30
(Portland) No. 2	....	2	8	8	Lessons in English	Lockwood	20	1	40
	....	3	7	7	Rhetoric	Hill, D. J.	20	1	40
	....	4	5	5	Rhetoric	Hill, D. J.	40	1	40
Putnam[3]	4	1	30	30	Grammar	....	14	5	40
	....	2	13	0	....	....	....	....	....
	....	3	18	0	....	....	....	....	....
	....	4	14	....	....	....	....	....	....
Salisbury[4]	3	1	21	20	Oral work	....	40	4	30
(Lakeville)	....	2	2	11	Oral work	....	40	3	30
	....	3	8	....	....	....	....	....	....
Saybrook	3	1	23	0	....	....	....	....	....
	....	2	8	0	....	....	....	....	....
	....	3	9	9	Lessons in English	Lockwood	15	5	30
Seymour	4	1	13	13	Grammar	Harper and B.	15	5	35
	....	....	....	13	Composition	Newcomer	28	½	....
	....	....	2	6	Composition	Newcomer	40	½	....
	....	....	3	9	Rhetoric	Genung	40	5	35
	....	....	4	7	....	....	....	....	....
Southington[5]	4	1	38	38	Grammar Composition	No text Swinton	36	2	40
	....	2	38	38	Lessons in English	Lockwood	36	4	40
	....	3	26	0	....	....	....	....	....
	....	4	33	....	Rhetoric	Williams	10	5	40
South Windsor	3	1	5	5	Grammar	Lockwood	....	....	....
(Wapping)	....	2	4	4	Rhetoric	....	....	....	....
	....	3	8	....	....	....	....	....	....

[1] Pupils write often on current events and the like. Once a term more formal compositions.

[2] Formal composition about three times a year; lesser composition constantly.

[3] All pupils have one exercise per week in the elements of correct English. One hour is devoted to composition and declamation.

[4] Teacher uses as his guide in this oral work Buehler's Exercises in English. Composition based on collateral studies almost daily.

[5] Pupils in the commercial course (of two years) receive a half-year's instruction in English composition.

TABLE IV — ENGLISH — (COMPOSITION, RHETORIC, AND GRAMMAR) — CON'D.

TOWNS	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks pursued	No. periods per week	Length of periods (minutes)
South Windsor......	3	1	6	6	Lessons in English	Lockwood.........	36	5	25
	....	2	6	6	Rhetoric	Genung...........	36	5	25
	....	3	....	....	....	....	....	....	....
Stafford..............	4	1	19	19	Lessons in English	Lockwood.........	36	2	35
	....	2	25	10	Composition	None...............	36	2	35
	....	3	13	13	Rhetoric	Genung...........	36	2	35
	....	4	13	0	....	....	....	....	....
Stamford.............	4	1	72	21	Lessons in English	Lockwood.........	....	....	....
	....	2	42	23	Lessons in English	Lockwood.........	....	3	45
	....	3	36	0	....	....	....	....	....
	....	4	24	25	Rhetoric	....	10	....	45
Stonington........... (No. 9)	3	1	18	18	Grammar	Maxwell...........	36	5	30
	....	2	7	7	Lessons in English	Lockwood.........	36	5	30
	....	3	7	7	Lessons in English	Lockwood.........	18	5	30
Stratford[1]............	2	1	25	0	....	....	....	....	....
		2	9	0	....	....	....	....	....
Thomaston...........	3	1	11	12	Composition	None...............	36	1	40
	....	2	15	9	Rhetoric	None...............	36	1	40
	....	3	6	11	Rhetoric	None...............	36	½	40
Torrington...........	4	1	50	22	Grammar	....	38	3	40
	....	....	....	....	Composition	....	....	2	40
	....	2	23	18	Rhetoric	....	....	....	....
	....	3	16	....	....	....	....	....	....
	....	4	15	....	....	....	....	....	....
Vernon...............	4	1	49	....	Lessons in English	Lockwood.........	38	5	40
	....	2	29	0	....	....	....	....	....
	....	3	21	....	Rhetoric	Waddy............	10	5	40
	....	4	20	....	....	....	....	....	....
Wallingford..........	4	1	21	21	English Language and Composition	....	20	5	40
					Rhetoric	Genung............	12	5	40
	....	2	17	....	....	....	....	....	....
	....	3	8	....	....	....	....	....	....
	....	4	10	....	....	....	....	....	....
Waterbury[2]..........	4	1	163	129	English Drill	....	40	1	40
	....	2	63	67	Sentences	....	....	....	....
	....	3	40	0	Style	....	40	1	40
	....	4	10	48	Rhetoric	....	20	5	40
West Hartford.......	4	1	17	17	Language	....	....	....	40
	...	2	11	....	....	....	....	....	....
	....	3	4	0	....	....	....	....	....
	....	4	4	4	Rhetoric	Williams..........	....	....	....
Wethersfield[3]........	2	1	16	10	Criticism Definition Derivation	....	....	5	....
	....	2	8	3					....
	....	....	....	....		....	....	....	....
Windham[4]...........	4	1	49	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....
Windsor[5].............	4	1	20	13	Lessons in English	Lockwood.........	....	5	....
	....	2	17	17	....	....	...	5	....
	....	3	7	7	....	....	....	....	....
	....	4	4	4	....	....	....	....	....
Windsor Locks......	2	1	7	7	Grammar	Reed and...... Kellogg	39	5	30
	....	2	7	7	Lessons in English	Lockwood	39	5	30
	....	....	....	....					

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[1] There is nothing, except what is gotten from Latin translation; all study Latin. The principal is working to enrich vocabulary of pupils.

[2] A single teacher gives her entire time to teaching English language and literature. Pupils keep note-books of facts learned.

[3] Those who take Latin do not take English. The aim of the English course is to give as good English expression as would be gained by the study of Latin with careful translation. The Dictionary is consulted to good advantage.

[4] No attempt is here made to separate the language from the literature.

[5] Those who take Latin have no English.

LITERATURE

TABLE V.

The following table shows the feeble attempts to introduce Literature into the High Schools. Much of the tabulation represents hopes, aspirations, and beginnings rather than actual accomplishments.

The *College requirements* are, in general, the only definite part of the courses.

The notes are instructive as showing the state of mind of those who have the matter in charge.

No useful summary can be made.

TABLE V — ENGLISH — (LITERATURE)

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying or reading author	Author, Work or Book	No. weeks read	No. periods per week
Ansonia[1].........	4	1	35	35	Selected Authors..............................	....	0
	....	2	17	17	Selected Authors..............................	28	5
	....	3	9	9	Selected Authors..............................	....	0
	....	4	10	10	Selected Authors..............................	....	0
Bethel[2]...........	3	1	25	25	English Literature (Backus and Brown)......	12	5
	....	2	23	23	American Literature (No text-book)..........	5	5
	....	....	....	23	English Literature..............................	....	....
	....	3	10	10	Shakspeare, Cæsar, Macbeth, Hamlet.......	....	....
Branford[3]........	3	1	14	14	Evangeline, C. of Miles Standish, Irving, Voyage, Hawthorne, H. of Seven G.....	....	....
	....	2	11	11	Lady of the Lake, Ancient Mariner, Ivanhoe.	....	....
	....	3	9	9	Tales of Shakspeare, King Lear, Julius Cæsar, Merchant of Venice..............	....	....
Bridgeport[4]......	4	1	157	157	Selected Authors, Plutarch....................	40	1
	....	2	76	76	Selected Authors, Shakspeare.................	40	1
	....	3	53	53	English Literature (Kellogg)..................	40	2
	....	4	50	50	College Requirements.........................	40	2
Bristol[5]...........	....	1	35	35	Evangeline, Whittier	40	2
	....	2	35	35	Merchant of Venice, Webster's Bunker Hill Oration..............................	40	2
	....	3	25	25	Plague in London, L'Allegro..................	40	2
	....	4	16	16	College English................................	40	2
Canton............	4	1	31	30	....	....	....
	....	2	9	9	Hawthorne	....	....
	....	3	14	14	Shakspeare......................................	....	....
	....	4	11	0	....	....	....
Cromwell.........	2	1	8	8	Selected Authors..............................	36	1
	....	2	5	5	Selected Authors..............................	36	1
Danbury[6]........	3	1	....	0	Nothing	....	....
	....	2	51	0	Nothing	....	....
	....	3	26	26	English Literature (Shaw).....................	....	....
Derby[7]............	4	1	20	20	Irving, Shakspeare, etc........................	....	....
	....	2	16	16	....	....	....
	....	3	12	12	American Literature	14	2½
	....	....	....	....	English Literature..............................	26	2½
	....	4	1	1	English Literature (Emery's Notes)...........	40	5
East Hartford[8]...	3	1	15	....	English and American Authors...............	36	....
	....	2	21	....	English and American Authors...............	36	2
	....	3	7	....	English and American Authors...............	36	2
Enfield............	4	1	27	27	Selected Authors..............................	40	0
	....	2	13	13	Selected Authors, Literature..................	40	4
	....	3	19	19	College Requirement..........................	40	1
	....	4	7	7	College Requirement..........................	30	1
Farmington[9].....	3	1	17	....	....	36	1
(Center)	....	2	19	....	....	36	1
	....	3	5	5	....	....	....
	....	....	....	....	....	....	....

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[1] Examinations are given at various times on the books read. As a rule reading is independent of any class instruction.

[2] Compositions are usually upon some author or period, during first year. In second year, American authors are studied from their works and from reference books. Declamations every week. Cheap editions of authors (20c.) are made use of.

[3] This reading was actually accomplished. The English and English Literature are one and the same exercise. The "Merchant of Venice" was studied from a dramatic point-of-view, and to show Shakspeare's genius.

[4] In selecting authors for reading, care is taken to correlate the work with history. In the first year Plutarch is read in connection with the study of ancient history; in the second year some of Shakspeare's writings occur in connection with modern and mediaeval history. The excellent public library renders unnecessary the accumulation of a large school library.

[5] The authors as given are not complete, nor necessarily consecutive, but are samples only of the work done.

[6] A deal of ground is covered in the third year; Chaucer and Spenser are sampled; two or three works of Shakspeare, Milton, and Pope, and one of Scott are read; Whittier, Lowell, Irving, Geo. Eliot, and other authors receive attention.

[7] The English literature and the English composition are interwoven and difficult of separation. The number of, or names of, books read cannot be given; this may be said, however,—that English has recently been made a full study, and that the college requirements rather dominate the selection of authors.

[8] There is no formal, separate study of Literature, but the whole subject is merged together with history in second year into one subject,— English.

[9] In the third year, Longfellow (Evangeline, Hiawatha) and Irving are tasted; in the first and second year there is one reading exercise a week.

TABLE V—ENGLISH—(LITERATURE)—CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying or reading author	Author, Work or Book	No. weeks read	No. periods per week
Farmington (Unionville)	4	1	21	21	Selected Authors	40	5
	....	2	14	14	Selected Authors	40	2
	....	3	13	13	College Requirements	40	1
	....	4	10	10	College Requirements	40	1
Greenwich[1]	2	1	29	29	Evangeline, Sir Launfal, Julius Cæsar, Sir Roger de Coverley	40	1
	....	2	12	12	Hamlet, Burke, Macaulay's Addison	40	1
	....	3	16	16	Paradise Lost, I and II; Pope's Homer I and VIII; Southey's Nelson, Carlyle's Burns	....	....
Guilford[2]	4	1	11	0	....	....	....
	....	2	10	0	....	....	....
	....	3	14	0	....	....	....
	....	4	5	5	English Literature (Shaw)	....	....
Hartford[3]	4	1	285	....	English	....	....
	....	2	166	....	College Requirements	....	....
	....	3	122	....	College Requirements	....	....
	....	4	115	....	English Literature, Critical Reading	....	....
Huntington[4]	4	1	16	....	....	....	....
	....	2	4	....	....	....	....
	....	3	4	4	English Literature (Shaw)	38	5
	....	4	7	7	English Literature (Shaw)	38	5
Killingly[5]	4	1	24	0	Reading	....	....
	....	2	15	....	Literature	....	4
	....	3	16	11	Literature Notes, no Text	24	4
	....	4	8	....	Literature	....	4
Litchfield[6]	4	....	....	....	....	....	....
	....	....	....	....	....	....	....
	....	....	....	....	....	....	....
	....	....	....	....	....	....	....
Madison	4	1	5	0	....	....	....
	....	2	7	0	....	....	....
	....	3	2	0	....	....	....
	....	4	6	6	English Literature (Shaw)	36	3
Manchester[7]	4	1	23	12	Selected Authors	38	5
	....	2	26	5	Selected Authors	38	5
	....	3	14	6	Selected Authors	38	5
				8	English Literature (Shaw)	38	3
	....	4	9	4	Selected Authors	38	5
				9	English Literature (Shaw)	38	3
Meriden	4	1	....	....	....	....	....
	....	2	....	....	American or English Authors	40	2
	....	3	45	....	American or English Authors	40	2
	....	4	32	....	English Literature	28	2
Middletown[8]	4	1	72	72	College Requirements	38	1
	....	2	62	62	College Requirements	38	1
	....	3	38	38	College Requirements	38	1
	....	4	41	41	College Requirements	38	1
Milford[9]	3	1	21	0	....	....	....
	....	2	24	0	....	....	....
	....	3	9	9	English Literature	29	5

[1] The fourth year of school work is not yet reached.

[2] Although Shaw's text is used, it is not wholly depended upon. Perhaps most of the work is done by biographical and literary synopses prepared by teacher to be filled out by pupils.

[3] Precise tabulation is impossible owing to the several courses. For more detailed statements, see course of study.

[4] The text is followed as a guide, but there is much collateral reading. Five plays of Shakspeare were read. No pupil is excused from English work.

[5] There is reading in all the years; it is correlated with other studies, especially History. The last two years college requirements dominate the reading.

[6] Owing to lack of data a complete report cannot be given.

[7] In the first and second year all who are not going to college have to take Literature. In the third year, all take it, Latin pupils reciting three hours per week, English pupils five hours per week.

[8] Instruction is offered in Junior and Senior year in American and English Literature, using appropriate texts; but none is this year taking it.

[9] Each week's rhetorical exercises are founded upon some one author whose biography in brief is placed upon the board.

TABLE V — ENGLISH LITERATURE — CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying or reading author	Author, Work or Book	No. weeks read	No. periods per week
Naugatuck[1]	4	1	37	37	Irving	40	1
	....	2	15	17	Bryant	20	1
	....	3	15	14	English Literature	40	5
	....	4	5	5	American Literature	....	....
New Britain[2]	4	1	102	102	American Authors	40	3
	....	2	73	73	American and English Authors	40	2
	....	3	53	53	English Authors	40	2
	....	4	34	34	A General Survey	40	3
New Canaan[3]	2	1	13	13	....	....	....
	....	2	5	5	....	....	....
New Hartford	3	1	6	6	Whittier	21	1
	....	2	2	2	American Literature	21	2
	....	3	7	7	American Literature	21	2
New Haven	4						
	....	1	220	220	Evangeline, Short Poems from Longfellow, Snow Bound, Julius Cæsar, Lars, Tales of the White Hills, Selections from Irving, Merchant of Venice, Talisman, Ivanhoe, Lady of the Lake, Birds and Bees	40	4, 5
	....	2	219	219	Silas Marner, Sir Launfal, Bunker Hill Orations, Tales of Wayside Inn, Parts I, II, III, Marmion, Tempest, Woodstock, As You Like It	....	....
	....	3	171	95	Ancient Mariner, Adam Bede, Defoe's History of the Plague, Twice-told Tales, Merchant of Venice, Idylls of the King, Lord Clive and other Historical Essays of Macaulay, Vicar of Wakefield, Ivanhoe	....	....
	....	4	138	138	Tales of a Traveler, Princess, L'Allegro, Il Penseroso, Comus, Lycidas, Essay on Milton, Essay on Addison, Roger de Coverley Papers, American Scholar	....	....
New Milford	2	1	13	....	....		
	....	....	....	....	....		
North Canaan[4]	2	1	7	7	Shakspeare Irving	....	5
	....	2	15	15			
Old Saybrook[5]	3	1	11	0	....	....	....
	....	2	4	0	Literature	....	....
	....	3	6	6	English Literature	....	....
Orange	2	1	20	....	....	....	....
	....	2	26	26	"Riverside Classics"	....	3
Plainville[6]	3	1	15	....	....	....	....
	....	2	16	....	Literature	....	....
	....	3	6	....	Literature	....	....
Plymouth[7]	3	1	7	0	....	....	....
	....	2	5	0	....	....	....
	....	3	15	11	Selected Authors	28	2
Plymouth[8]	3	1	15	0	....	....	....
(Terryville)	....	2	11	11	American Literature	18	5
	....	3	7	7	English Literature	21	5

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[1] Swinton's text is used in the third year with Taine's as a book of reference. No text in the fourth year.

[2] This course is prospective. In the general survey, Shakspeare and Milton will be chiefly studied.

[3] Entire works of Hawthorne, Ruskin, and Scott have been read.

[4] The biography of authors is studied and works read. Composition work on Hamlet.

[5] Shaw's book is used as a basis by teacher; pupils have no text. Authors are sampled, biography studied and sometimes a criticism written.

[6] Shakspeare and Scott are read. There are two courses; English and Latin-English. Literature in the English course begins and ends in the second year. In Latin-English course it appears in two terms of a proposed fourth year.

[7] Tennyson's Princess is reading. Selections committed to memory in the first and second years.

[8] Hawthorne and Lemmon's text in American books in English Literature are used. A surprising number of American works is read.

TABLE V — ENGLISH LITERATURE — CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying or reading author	Author, Work or Book	No. weeks read	No. periods per week
Portland[1]	3	1	10	....	....	....	....
(Gildersleeve)	....	2	3	....	....	....	....
	....	3	6	....	....	....	....
Portland	4	1	12	12	Ivanhoe	20	2
(No. 2)	....	2	8	8	Last of Mohicans, House of Seven Gables	20	1
	....	3	7	7	Sir Launfal, College Requirements	20	1
	....	4	5	5	College Requirements	20	1
Putnam	4	1	30	0	....	....	....
	....	2	13	0	....	....	....
	....	3	18	....	English Literature	40	....
	....	4	14	....	English Literature	40	....
Salisbury[2]	3	1	21	12	Selected Authors,	40	5
(Lakeville)	....	2	2	10	Goldsmith	40	5
	....	3	8	9	18 Cent. Writers	40	4
Saybrook	3	1	23	0	....	....	....
	....	2	8	0	....	....	....
	....	3	9	9	English Literature	23	5
Seymour[3]	4	1	13	0	....	....	....
	....	2	6	0	....	....	....
	....	3	9	0	....	....	....
	....	4	7	7	English Literature	40	....
Southington[4]	4	1	38	38	Selected Authors	36	1
	....	2	38	38	Selected Authors	36	1
	....	3	26	26	Selected Authors	36	1
	....	4	33	33	Selected Authors	36	1
South Windsor[5]	3	1	5	....	....	....	....
(Wapping)	....	2	4	....	....	....	....
	....	3	8	8	Literature	....	....
South Windsor[6]	3	1	6	....	....	....	....
	....	2	6	....	....	....	....
	....	3	3	3	Literature, Shaw	36	5
Stafford[7]	4	1	19	0	....	....	....
	....	2	25	0	....	....	....
	....	3	13	13	American Literature	10	1
	....	4	10	....	English Literature	36	3
Stamford	4	1	72	21	American Literature	....	....
	....	2	42	23	Readings	....	....
	....	3	36	12	English Literature	10	....
	....	4	24	25	English Literature	40	....
Stonington	3	1	18	18	Longfellow	....	....
	....	2	7	7	Irving	....	....
	....	3	7	7	Longfellow and Whittier	....	....
Stratford[8]	2	1	25	....	....	....	....
	....	2	9	....	....	....	....
Thomaston[9]	3	1	11	12	Irving	36	1
	....	2	15	9	Scott	36	1
	....	3	6	12	Hawthorne and others	36	....

[1] The Sketch-book, Evangeline, Holmes' and Bryant's shorter poems are read.

[2] Lamb's tales from Shakspeare, Irving's Sketch-book, Longfellow, Whittier, *et al.*, during the first year; Dryden, Swift, Addison, *et al.*, in third year.

[3] Shaw's text is used, as also Hawthorne's, but a good number of works were read.

[4] There is a full reading course extending through the four years. Each class reads critically one work in school, and three out of five other selected works out of school time, and sustains examination on all the books read.

[5] While Literature is pursued during the third year, something is done during the first two years.

[6] Some reading (Whittier and Longfellow) in first year. College requirements are tasted in second year. Independent readings in third year.

[7] There is much reading of good authors in the lower grades.

[8] There is nothing distinctly, yet good literature has been and will be read. The principal is hoping to establish a course in Literature through all the grades.

[9] A new course has recently been adopted; possibly it gives more time to English and to Literature.

TABLE V — ENGLISH (LITERATURE) — CONCLUDED

TOWNS	Years in course	Year of course	No. pupils in this school year	No. pupils studying or reading author	Author, Work or Book	No. weeks read	No. periods per week
Torrington	4	1	50	....	English	....	5
	....	2	23	....	....	....	...
	....	3	16	....	College English	40	2
	....	4	15	....	College English	28	2
	....	....	....	....	Literature	40	4
Vernon	4	1	49	0	....	....	....
	....	2	29	....	....	....	....
	....	3	21	....	....	....	....
	....	4	20	....	English and American Literature	38	....
Wallingford	4	1	21	21	American Literature	8	5
	....	2	17	12	American Literature	32	4
	....	....	....	....	English Literature	8	4
	....	3	8	....	English Literature	32	4
	....	....	....	....	College English	8	4
	....	4	10	....	College English	20	3
Waterbury[1]	4	1	163	129	Irving and American Poets	40	1
	....	2	63	67	Scott and American Orators	40	1
	....	3	40	0	Goldsmith	40	1
	....	4	10	48	Literature	20	5
West Hartford[2]	4	1	17	....	Reading	....	2
	....	2	11	....	Reading	....	2
	....	3	4	0	....	....	....
	....	4	4	4	English Literature	....	2
Wethersfield[3]	2	1	16	10	Reading	....	5
	....	2	8	3			
Windham[4]	4	1	49	49	English	....	....
	....	2	31	28	English	....	....
	....	3	24	20	College English	....	....
	....	4	16	16	College English	....	....
Windsor	3	1	20	....	Readings	37	3
	....	2	17	17	....	....	....
	....	3	7	7	....	....	....
	....	4	4	....	....	....	....
Windsor Locks	2	1	7	7	Selected Authors	39	....
		2	7	7	Selected Authors	39	....

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[1] Three plays of Shakspeare are read. Pancoast's text is used in the Senior year.

[2] The Sketch-book, Evangeline, College requirements, and perhaps other works are read.

[3] An author of repute, as Irving (Sketch-book), is read. From the reading the teacher fashions her instruction.

[4] The course in English consists of Literature, Grammar, Rhetoric, Essays, Elocution. Twenty-eight works are scheduled for study during first year; nine titles from the second year's work; eleven the third, and fifteen the fourth year. Each year has moreover a list of supplementary readings. One-third of the pupil's time is thus thought to be given to English.

History

TABLE VI.

It is impossible to make any useful classification. "General" history seems to be most popular.

The number studying History is, first year, . .	1,331
" " " " " . .	673
" " " " " . .	437
" " " " " . .	209
Total, ...	2,670

TABLE VI — HISTORY

TOWNS	Number of years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Ansonia[1]	4	1	35	0	....	....	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	9	6	General	Myers	39	4	40	120
	....	4	10	0	....	....	....	....	....	....
	....	....	....	....	....	....	....	...	....	....
Bethel[2]	3	1	25	....	General	Myers	28	5	45	60
	....	2	23	....	Greek and Roman	Myers	....	5	45	60
	....	3	10	10	English	....	16	5	45	60
Branford[3]	3	1	14	0	....	....	....	....	....	...
	....	2	11	11	General	Anderson and..	36	4	40	75
	....	3	9	9	English	Myers	36	5	45	75
Bridgeport	4	1	157	157	Ancient	Myers	40	2	40	....
	....	2	76	76	Mediæval and Modern	Myers	40	2	40	....
	....	3	53	36	English	Montgomery	40	2	40	....
	...	4	50	50	XIX Century	....	20	2	40	....
	...	....	....	50	Review	....	20	2	40	....
Bristol	4	1	42	40	Ancient	Myers	25	4	35	60
	...	2	18	6	Const. Hist. of U. S.	Fiske	31	5	40	60
	....	3	21	17	General	Myers	40	5	40	60
	....	4	16	10	Modern	....	40	5	35	60
Canton[4]	3	1	9	9	Roman	Allen	40	4	35	60
(Collinsville)	...	2	14	....	Modern	Montgomery	40	4	35	60
	....	3	11	0	....	....	....	....	....	....
Cromwell	2	1	8	8	General	Myers	36	5	20	60
	...	2	....	....	....	....	....	....	....	....
Danbury	3	1	51	0	Nothing	....	....	....	....	....
	....	2	26	26	General	Myers	40	5	40	60
	....	3	25	25	United States	....	14	5	40	60
Derby	4	1	20	0	....	....	....	....	....	....
	....	2	16	16	Grecian and General	Myers	40	2½	40	90
	....	3	12	..	General	Myers	40	2½	40	90
	....	4	1	....	....	....	....	....	....	....
East Hartford	3	1	15	0	....	....	....	....	....	....
	....	2	21	8	General	Myers	....	....	35	60
	....	....	....	....	....	....	....	....	....	....
Enfield[5]	4	1	27	0	....	....	....	....	...	....
	....	2	13	0	....	....	....	....	....	....
	....	3	19	12	General	Myers	40	5	45	90
	....	4	7	7	Roman	Pennell	30	1	45	60
	....	....	....	3	Grecian	Pennell	30	1	45	60
Farmington	3	1	18	18	United States	Barnes	26	5	20	60
(Center)	....	....	....	18	General	Barnes	10	5	20	60
	....	2	5	5	General	Barnes	26	5	20	60
Farmington[6]	....	...	....	....	....	....	....	....	....	....
(Unionville)	4	1	21	21	United States	Montgomery	20	2	30	....
	....	2	9	14	Ancient, English	Myers	....	....	....	....
	....	3	9							
	....	4	7							
Greenwich	3	1	12	0	English	....	....	....	....	....
	...	2	16	5	German	Fyffe	40	1	45	90
	....	3	0	0	....	....	....	....	....	....
Guilford	4	1	11	11	United States	Montgomery	38	3	35	....
	....	2	10	10	General	Myers	38	5	35	....
	....	3	14	0	....	....	....	....	....	....
	....	4	5	5	English	Montgomery	38	5	35	....

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[1] The topical method with library aids is used.

[2] First year Latin takes no history. Only Latin pupils of second year take history. In third year all pupils take history for one term.

[3] The texts are used as guides only.

[4] The history is a flexible course; much of it, for instance, was taught in the fourth year

[5] There is, or may be, additional work in the first and second years in the English course.

[6] Classes are merged for practical work.

TABLE VI — HISTORY — CONTINUED

TOWNS	Number of years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Hartford	4	1	285	196	Classical, English	Allen, Myers	40	5	45	....
	....	2	166	106	....	Montgomery	40	5	45	....
	....	3	122	48	Mediæval	Yonge	16	5	45	....
	....	4	115	59	Modern	Lord	40	5	45	....
Huntington[1]	4	1	16	0	....	....	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	8	0	....	....	....	....	....	....
	....	4	7	0	....	....	....	....	....	....
Killingly	4	1	24	22	General	Myers	38	4	40	60
	....	2	15	6	General	Myers	38	5	40	....
	....	3	16	16	General	....	24	5	40	....
	....	4	8	0	....	....	....	....	....	....
Litchfield[2]	4	1	11	....	....	....	....	....	....	....
	....	2	16	....	....	....	....	....	...	....
	....	3	12	....	....	....	....	....	....	....
	....	4	7	....	....	....	....	....	...	....
Madison	3	1	7	0	....	....	....	....	....	....
	....	2	2	0	....	....	....	....	....	....
	...	3	6	0	....	....	....	....	....	..
Manchester[3]	4	1	23	23	Ancient	Myers	38	2	40	90
	....	2	26	29	Ancient	Myers	38	2	40	90
	....	3	14	7	Constitutional History	None	38	5	40	90
	....	4	9	4						
Meriden	4	1	114	....	English	....	28	....	....	....
	....	2	88	0	....	....	....	....	....	....
	....	3	50	0	....	....	....	....	....	....
	....	4	33	20	General	....	....	....	....	....
Middletown[4]	4	1	72	5	General	Myers	38	5	45	90
	....	2	62	....	....	....	....	....	....	....
	....	3	38	....	....	....	....	....	....	....
	....	4	41	....	....	....	....	....	....	....
Milford	3	1	21	0	....	....	....	....	....	....
	....	2	24	0	....	....	....	....	....	....
	....	3	9	9	General	Appleton	29	4	30	45
Naugatuck	4	1	37	37	United States	....	20	5	45	90
	....	2	15	15	English	....	20	5	45	90
	....	3	15	0	....	....	....	....	....	....
	....	4	5	....	Ancient	....	20	5	45	90
					General		20	5	45	90
New Britain	4	1	102	102	Ancient	Myers	40	2	45	60
	....	2	73	62	General	Myers	40	2	45	60
	....	3	53	46	English	....	20	3	45	60
	....	....	....	....	Pol. Hist. U. S.	....	20	3	45	60
	....	4	34	0	....	....	....	....	....	....
New Canaan	2	1	13	22	General	Myers	....	3	30	30
	....	2	5							
New Hartford	3	1	6	6	United States	Montgomery	21	3	30	45
	....	2	4	11	English	Montgomery	30	4	30	45
	....	3	7							
New Haven	4	1	220	178	Ancient	Myers	40	4	40	90
	....	2	219	0	....	....	....	....	....	...
	....	3	171	56	Mediæval	Myers	40	5	40	90
	....	4	38	50	Modern	Myers	40	2	40	90
New Milford	2	1	13	13	English	...	....	....	30	60
	....	2	3	3	Ancient	...	....	....	30	60
North Canaan	2	1	7	7	English	....	....	5	30	60
	....	2	15	15	General	Myers	....	3	30	60

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[1] There is no history in the course, but the Senior Class last year petitioned to be taught, which was done three times weekly out of school hours.

[2] History is studied, but owing to rearrangement of classes and lack of data, it cannot be tabulated.

[3] Effort is making to strengthen the History course, in order that those who do not remain long may get something of value. The constitutional history of the third year is largely civil government.

[4] Pupils from any class may elect the work of this one class. Besides this class, there is to be special work on Grecian and Roman history to answer the demands of the colleges.

TABLE VI — HISTORY — CONTINUED

TOWNS	Number of years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Tex	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Old Saybrook	3	1	11	11	Ancient	Appleton	36	3	30	40
	...	2	4	4	English	Montgomery	36	2	40	40
	....	3	6	6	American	....	36	3	30	40
Orange	2	1	20	20	General	Barnes	38	4	40	45
(Union)	....	2	26	26	Mediæval	....	38	....	. ..	....
Plainville	3	1	15	....	English	Berard	28	....	45	60
	....	2	16	....	English	....	8	....	45	60
	....	....	...	....	Ancient	....	30	....	45	60
	....	3	6	0	....	....	....	....	....	....
Plymouth	2	1	5	6	United States	....	38	4	20	50
(District 1)	....	2	15	12	English	....	38	4	30	40
Plymouth[1]	3	1	15	15	English	Anderson	18	5	30	60
(District 2)	....	2	11	0	....	....	....	....	....	....
(Terry ville)	....	3	7	0	....	....	....	....	....	....
Portland (District 1)	2	1	3	0	....	....	....	....	....	....
(Gildersleeve)	....	2	6	6	General	Myers	40	2	30	60
Portland	3	1	8	8	Roman	Myers	20	4	40	90
(District 2)	....	2	7	7	Greek	Myers	20	4	40	90
	....	3	5	7	General	Myers	40	2	40	90
Putnam	4	1	30	0	....	....	....	....	....	....
	....	2	13	0	....	....	....	....	....	....
	....	3	18	....	American	....	14	....	40	90
					English	....	26	....	40	90
	....	4	14	....	Roman	....	14	....	40	90
					Greek	....	26	....	40	90
Salisbury	3	1	21	21	American	Barnes	28	3	30	45
(Lakeville)	....	2	2	10	General	....	40	3	30	45
	....	3	8							
Saybrook	3	1	23	23	English	Montgomery	23	....	30	30
	....	2	8	8	General	Barnes	38	....	30	30
	....	3	9	....	....	....	....	....	....	....
Seymour	4	1	13	13	Grecian	Fyffe	16	5	30	60
	....	....	....	....	Roman	Creighton	14	5	30	60
	....	2	6	0	....	....	....	...	....	....
	....	3	9	9	Mediæval and Modern	Myers	40	5	30	60
	....	4	7	0	....	....	....	....	....	....
Southington[2]	4	1	38	38	General	....	36	5	40	60
	....	2	38	28	General	....	36	5	40	60
	....	3	26	26	General	....	36	4	40	60
	....	4	33	0	....	....	....	....	....	....
South Windsor	3	1	5	0	....	....	....	....	....	....
(Wapping)	....	2	4	3	General	Myers	....	....	25	60
	....	3	8	0	....	....	....	....	...	....
South Windsor	2	1	6	0	....	....	...	....	....	....
	....	2	3	0	....	....	....	....	....	....
Stafford[3]	4	1	19	0	....	....	....	....	....	....
	...	2	25	25	General	Myers	36	5	35	60
	....	3	13	5	Greek	Myers	36	2	35	60
	....	4	13	0	....	....	...	....	....	....
Stamford[4]	4	1	72	72	English	....	20	....	45	....
	....	2	42	31	General	....	40	....	45	....
	....	3	36	....	Greek	....	....	....	....	....
	....	4	24	...	....	....	....	....	....	....
Stonington	2	1	7	0	....	....	....	....	....	....
(District 9)	....	2	7	0	....	....	....	....	....	....

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[1] Ancient history may be studied for eighteen weeks in third year, but none is taking it this year.

[2] Beginning with the earliest history, the study continues in chronological sequence.

[3] The classical course takes history but three times weekly in second year. In third year pupils in the classical course only have history.

[4] The English history of the first year is studied with reference to the origin of American ideas. There is also English history in the third and fourth years adapted to the literature read.

TABLE VI — HISTORY — CONCLUDED

TOWNS	Number of years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Stratford	2	1	25	25	General	Myers	40	5	25	30
....	....	2	9	9	General	Myers	40	5	25	45
Thomaston	3	1	11	0	....	....	....	....	....	....
	....	2	15	11	Ancient	Pennell	36	5	40	75
	....	3	6	4	English	Montgomery	26	5	40	75
Torrington	4	1	50	25	Ancient	....	40	5	40	....
	....	2	23	21	English	....	28	5	40	....
	....	3	16	0	....	....	....	....	....	....
	....	4	15	0	....	....	....	....	....	....
Vernon	4	1	49	49	General	Myers	24	5	40	....
	....	2	29	0	....	....	..	....	....	....
	....	3	21	11	English	Green	27	....	40	....
				12	Ancient	....	11	....	40	....
	....	4	20	0	....	....	....	....	....	....
Wallingford[2]	4	1	21	0	....	....	....	....	....	....
	....	2	17	6	Ancient	Myers	20	4	40	....
					Modern		20	4	40	....
	...	3	8	0	....	....	....	....	....	....
	....	4	10	....	General	....	....	....	....	....
Waterbury	4	1	163	116	Ancient	....	20	5	40	90
	....	....	....	....	Modern	....	20	5	40	90
	...	2	63	0	....	....	....	....	...	....
	....	3	40	28	Mediæval	....	20	5	40	45
	....	4	10	0	....	....	....	....	....	....
West Hartford	4	1	17	....	United States	....	15	....	....	....
	....	2	11	0	Ancient	Myers	22	....	40	75
	....	3	4	4	Mediæval and Modern	Myers	....	....	....	....
	...	4	4	0	....	....	....	....	...	....
Wethersfield	2	1	16	16	General	Myers	....	....	30	....
	....	2	8	8	English	....	....	....	....	..
Windham[3]	4	1	49	0	....	....	....	....	....	....
	....	2	31	13	General	Myers	...	....	....	....
	....	3	24	19	General	Myers	40	3	40	....
	....	4	16	13	General	Myers	40	2	40	....
Windsor	4	1	20	0	...	....	....	....	....	...
	...	2	17	17	Ancient	....	....	3	....	....
	....	3	7	4	Mediæval	....	...	4	....	...
	....	4	4	0	....	....	....	....	....	....

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[2] The history of the fourth year is confined to the English and English-Latin courses.
[3] Other texts are used.

Civil Government

TABLE VII

Under this head are grouped Civil Government and Political Economy.

Civil Government is often united with History. It receives little attention, and the instruction apparently produces no effect upon the political activities of the communities in which high schools are located.

The number studying these subjects is 721 in 36 schools.

TABLE VII — GOVERNMENT

TOWNS	Years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Ansonia	4	1	35	0	....	....	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	9	0	....	....	....	....	....	....
	....	4	10	0	....	....	....	....	....	....
Bethel[1]	3	1	25	0	....	....	....	....	....	....
	....	2	23	28	Civil Government	Crocker	16	5	45	60
	....	3	10	0	....	....	....	....	....	....
Branford[2]	3	1	14	0	....	....	....	....	....	....
	....	2	11	0	...	....	....	....	....	....
	....	3	9	9	Civil Government	Fiske	....	....	....	....
Bridgeport[3]	4	1	157	0	....	....	....	....	....	....
	....	2	76	0	....	....	....	....	....	....
	....	3	53	14	Political Economy	Thompson	20	4	40	full
	...	4	50	0	....	....	....	....	....	....
Bristol[4]	4	1	35	0	....	....	....	....	....	....
	...	2	35	....	See History	....	....	....	....	....
	....	3	25	....	....	....	....	....	....	....
	....	4	16	0	....	....	....	....	....	....
Canton	3	1	9	0	....	....	....	....	....	....
	....	2	14	14	Civil Government	Dole	40	4	40	60
	....	3	11	....	....	....	....	....	....	....
Danbury	3	1	51	0	....	....	....	....	....	....
	....	2	26	0	....	....	....	....	....	....
	....	3	25	25	Civics	Macy	14	5	40	60
Derby[5]	3	1	16	....	....	....	....	....	....	....
	....	2	12	....	....	....	....	....	....	....
	....	3	1	....	....	....	....	....	....	....
East Hartford	3	1	15	0	....	....	....	....	....	....
	....	2	21	0	....	....	....	....	....	....
	....	3	7	7	Civil Government	Fiske	....	....	....	....
Enfield[6]	4	1	27	0	....	....	....	....	....	....
	....	2	13	0	....	....	....	....	....	....
	....	3	19	0	....	....	....	....	....	....
	....	4	7	4	Civil Government. Political Economy Ethics	Fiske Walker Steele	16 14 10	4 4 4	45 45 45	90 90 90
Farmington	2	1	18	0	....	....	....	....	....	....
	....	2	5	0	....	....	....	....	....	....
Farmington (Unionville)	4	1	21	0	....	....	....	....	....	....
	....	2	14	0	....	....	....	....	....	....
	....	3	13	13	Lectures	None	40	1	45	30
	....	4	10	10	Lectures	None	20	1	45	30
Greenwich[7]	3	1	12	....	....	....	....	....	....	....
	....	2	16	....	....	....	....	....	....	....
	....	3	0	....	....	....	....	....	....	....
Groton	4	1	12	0	....	....	....	....	....	....
	....	2	11	0	....	....	....	....	....	....
	....	3	6	0	....	....	....	....	....	....
	....	4	7	0	....	....	....	....	....	....
Guilford[8]	4	1	11	0	....	....	....	....	....	....
	....	2	10	0	....	....	....	....	....	....
	....	3	14	0	....	....	....	....	....	....
	....	4	5	5	Civil Government	Young	24	5	35	....

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[1] Miniature town meetings are conducted.

[2] Collateral readings, as the "Beginnings of New England," are used.

[3] "Civil Government" (Dole) is taught in the grades.

[4] The subject is also taught through newspaper-reading and essay-writing.

[5] There is no political science, except so much as the teacher may bring into history.

[6] There is, or may be, additional work during the first and second years for those taking the business course.

[7] There are talks on civil government at times of elections and on other occasions.

[8] A town official questioned on civil government.

TABLE VII—GOVERNMENT—CONTINUED

TOWNS	Years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Hartford[1]	4	1	285	0	....	....	....	....	....	....
....		2	166	0	....	....	....	....	....	....
....		3	122	0	....	....	....	....	....	....
....		4	115	0	....	....	....	....	....	....
Huntington	4	1	16	0	....	....	....	....	....	....
....		2	4	0	....	....	....	....	....	....
....		3	8	8	Civil Government	Young	....	....	....	....
....		4	7	....	....	....	....	....	....	....
Killingly[2]	4	1	24	63	Civil Government	Dole	....	1	....	....
...		2	15							
....		3	16							
....		4	8							
Manchester[3]	4	1	23	0	....	....	....	....	....	....
....		2	26	0	....	....	....	....	....	....
....		3	14	....	....	....	....	....	....	....
....		4	9	....	....	....	....	....	....	....
Meriden[4]	4	1	114	0	....	....	....	....	....	....
....		2	88	0	....	....	....	....	....	....
....		3	50	0	....	....	....	....	....	....
....		4	33	0	....	....	....	....	....	....
Middletown	4	1	72	0	....	....	....	....	....	....
....		2	62	0	....	....	....	....	....	....
....		3	38	0	....	....	....	....	....	....
....		4	41	31	Civil Government	Fiske	16	5	45	90
....	....	....	....	....	Political Economy	Walker	22	5	45	90
Milford	4	1	21	21	Civil Government	Thorpe	38	4	30	30
....		2	24	0	....	....	....	....	....	....
....		3	9	0	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....
Naugatuck	4	1	37	0	....	....	....	....	....	....
....		2	15	0	....	....	....	....	....	....
....		3	15	0	....	....	....	....	....	....
....		4	5	9	Civics	Townsend	20	5	45	90
					Political Economy	....	20	5	45	90
New Britain	4	1	102	0	....	....	....	....	....	....
....		2	73	0	....	....	....	....	....	....
....		3	53	0	....	....	....	....	....	....
....		4	34	12	Civics	Fiske	20	3	45	60
					Political Economy	....	20	3	45	60
New Canaan	2	1	13	8	Amer. Citizenship	Doyle	....	....	....	....
....		2	5	....	....	....	....	....	....	....
New Hartford	3	1	6	0	....	....	....	....	....	....
....		2	4	11	Civil Government	Peterman	6	4	30	45
....		3	7							
New Haven	4	1	220	0	....	....	....	....	....	....
....		2	219	0	....	....	....	....	....	....
....		3	171	0	....	....	....	....	....	....
....		4	138	....	Government	....	40	2	40	....
New Milford	2	1	13	0	....	....	....	....	....	....
....		2	3	0	....	....	....	....	....	....
North Canaan	2	1	7	0	....	....	....	....	....	....
....		2	15	0	....	....	....	....	....	....
Old Saybrook	3	1	11	0	....	....	....	....	....	....
....		2	4	0	....	....	....	....	....	....
....		3	6	6	Civil Government	No text	....	....	....	....
Orange	2	1	20	0	....	....	....	....	....	....
(Union)	....	2	26	....	Civics	....	2 t	....	....	....
Plainville	3	1	15	0	....	....	....	....	....	....
....		2	16	0	....	....	....	....	....	....
....		3	6	6	Government	Young	1 t	....	45	....
Plymouth[5]	2	1	5	0	....	....	....	....	....	....
....		2	15	....	....	....	26	4	30	40

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[1] A course in civics is under consideration.

[2] The entire school, once weekly ; a variety of authors.

[3] See third year of History with note.

[4] Civics is an elective for one and one-half terms of second year.

[5] There will be studied for twenty-six weeks, four times weekly, some political science.

TABLE VII — GOVERNMENT — CONTINUED

TOWNS	Years in school course	Years of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Plymouth	3	1	15	0	....	....	....	....	....	....
	....	2	11	11	Civil Government	Macy	18	5	30	60
	....	3	7	....	....	....	....	....	....	....
Portland	3	1	10	0	....	....	....	....	....	....
(Gildersleeve)	....	2	3	0	....	....	....	....	....	....
	....	3	6	6	Civil Government	....	12	5	35	60
Portland[1]	4	1	12	0	....	....	....	....	....	....
	....	2	8	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
	....	4	5	....	Civil Government	Fiske	40	2	40	90
Putnam	4	1	30	0	....	....	....	....	....	....
	....	2	13	0	....	....	....	....	....	....
	....	3	18	12	Civil Government	Mowry	14	....	....	....
	....	4	14	0	Political Economy	Fawcett	14	....	....	....
Salisbury	3	1	21	0	....	....	....	....	....	....
(Lakeville)	....	2	2	11	Civil Government	Oral	40	2	30	45
	....	3	8	....	....	....	....	....	....	....
Saybrook	3	1	23	23	Civics	Peterman	14	....	30	....
	....	2	8	....	....	....	....	....	....	....
	....	3	9	....	....	....	....	....	....	....
Seymour[2]	4	1	13	0	....	....	....	....	....	....
	....	2	6	0	....	....	....	....	....	....
	....	3	9	0	....	....	....	....	....	....
	....	4	7	7	Civics	Young	12	....	....	....
Southington	4	1	38	0	....	....	....	....	....	....
	....	2	38	0	....	....	....	....	....	....
	....	3	26	0	....	....	....	....	....	....
	....	4	33	33	Civil Government. Political Economy	Williams and R. Walker	20 16	4 4	40 40	60 60
South Windsor	3	1	5	5	....	....	....	....	....	....
(Wapping)	....	2	4	....	....	....	....	....	....	....
	....	3	8	....	....	....	....	....	....	....
South Windsor	2	1	6	0	...	....	....	....	....	....
	....	2	3	0	Civil Government	....	26	5	25	90
Stafford	4	1	19	0	....	....	....	....	....	....
	....	2	25	0	....	....	....	....	....	....
	....	3	13	0	....	....	....	....	....	....
	....	4	13	6	Civil Government	Steele	36	3	35	75
Stamford	4	1	72	72	Civics	....	20	....	45	....
	....	2	42	0	....	....	....	....	....	....
	....	3	36	....	Economics	....	10	....	....	....
	....	4	24	....	....	....	....	....	....	....
Stonington	3	1	18	0	....	....	....	....	....	....
(District 9)	....	2	7	0	....	....	....	....	....	....
	....	3	7	7	Civil Government	Peterman	....	....	....	....
Stratford	2	1	25	34	Civil Government	None	9	5	25	30
	....	2	9							
Thomaston	3	1	11	0	....	....	....	....	....	....
	....	2	15	11	Civil Government	Young	14	5	40	60
	....	3	6	0	....	....	....	....	....	....
Torrington	4	1	50	0	....	....	....	....	....	....
	....	2	23	17	Civil Government	....	14	5	40	....
	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	.	....	....
Vernon	4	1	49	0	....	....	....	....	....	....
	....	2	29	0	Civil Government	Young	11	....	....	....
	....	3	21	0	Civil Government	Young	11	....	....	....
	....	4	20	6	Political Economy	Macvane	13	5	40	....
Wallingford	4	1	21	0	....	....	...	....	..	....
	....	2	17	....	Civil Government	....	20	3	....	....
	....	3	8	0	....	....	....	....	....	....
	....	4	10	....	Civil Government	....	20	3	....	....

[1] Because of a rearrangement of classes, there is no class in civil government this year.

[2] Dawes, Dole, Mowry, Bryce, Peterman, Fiske, Macy, and others are used as books of reference.

TABLE VII — GOVERNMENT — CONTINUED

TOWNS	Years in school course	Year of school course	Pupils in this school year	Pupils studying this subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation
Waterbury........	4	1	163	0	....	....	....	....	....	....
	....	2	63	....	....	....	....	....	....	....
	....	3	40	....	Civil Government...	Fiske	....	....	....	....
	....	4	10	0	....	....	....	....	....	....
Wethersfield......	2	1	16	0	....	....	....	....	....	....
	....	2	8	0	....	....	....	....	....	....
Windham........	4	1	49	0	....	....	....	....	....	....
	....	2	31	0	....	....	....	....	....	....
	....	3	24	0	....	....	....	....	....	....
	....	4	16	13	Civil Government...	Fiske	12	....	....	....
	....	....	....	....	Political Economy..	....	12	..	....	....
Windsor..........	4	1	20	0	....	....	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
	....	4	4	0	....	....	....	....	....	....
Windsor Locks...	2	1	7	0	....	....	....	....	....	....
	....	2	7	3	Civil Government...	Fiske	....	....	....	....

Modern Languages

TABLE VIII

In three or four schools opportunity is given for four years of either French or German. In several, one may be taken two years and the other two years.

College requirements are generally the determining feature of a part of the work.

There are two classes of teachers, (*a*) those who have received a college education in a modern language and are presumed to understand the English language, (*b*) foreigners who have not a command of English, but are masters of their own tongue.

They first teach the principles of grammar and secure facility in translation. They do this with considerable skill, because they appreciate the difficulties of the English student. In rendering English into the foreign language there are mistakes in grammar, and the pronunciation is faulty.

The foreigner is strenuous about pronunciation. The most glaring defects in English grammar, in idioms and in translation are unnoticed.

Neither of these classes of teachers is ever examined or tested as to qualification for teaching.

The number studying German is,

First year of course	219
Second " "	301
Third " "	225
Fourth " "	104
Total	849

The number studying French is,

First year of course	187
Second " "	142
Third " "	272
Fourth " "	201
Total	802

TABLE VIII — MODERN LANGUAGES

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
Ansonia	4	1	35	0	....	....	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	9	6	German	Joynes	39	5	40	90
	....	4	10	6	German	Selected Authors.	39	5	40	120
Bethel	3	1	0	....	....	....	....	....	....	....
	....	2	0	....	....	....	....	....	....	....
	....	3	0	....	....	....	....	....	....	....
Branford	3	1	14	4	German	....				
	....	2	11	1	French	....	....	4	40	....
	....	3	9							
Bridgeport	4	1	157	26	French	Charveral	40	4	40	full
	....	2	76	24	French	Classics	40	4	40	full
	....	3	53	49	German	Joynes-Meisner	40	4	40	full
	....	4	50	46	German	....	40	4	40	full
Com. Course	....	1	....	59	German	....	40	4	40	full
	....	2	....	22	German	....	20	4	40	full
Bristol	4	1	42	0	....	....	....	....	....	....
	....	2	18	0	....	....	....	....	....	....
	....	3	21	15	German	Joynes	40	5	40	90
	....	4	16	16	German	Selected Authors.	40	5	40	90
Canton	3	1	9	....	French	Keetel	40	5	40	90
	....	2	14	....	French	Selected Authors.	40	5	40	90
	....	3	11	....	French	Selected Authors.	40	5	40	90
Danbury[1]	3	1	....	....	French	....	....	....	....	....
	....	2	51	....	....	....	....	....	....	....
	....	3	26	....	....	....	....	....	....	....
Derby[2]	4	1	20	....	French	Van Dahl	....	5	40	60
	...	2	16	....	French	....	....	5	40	90
	....	3	12	....	German	Collar	....	5	40	90
	....	4	1	....	German	....	....	5	40	90
East Hartford[3]	3	1	15	0	....	....	....	....	....	....
	..	2	21	11	French	Van Dahl	....	....	....	....
				5	German	Joynes-Meisner	....	....	....	....
	....	3	7	3	French	....	....	....	....	....
Enfield	4	1	27	5	German	Otis, Joynes	40	3	45	120
				7	French	Chardeval	40	3	45	120
	....	2	13	0	German	as above	40	3	45	120
				0	French	as above	40	3	45	120
	....	3	19	8	German	as above	40	3	45	90
				11	French	as above	40	3	45	90
	....	4	7	1	German	as above	40	3	45	90
				6	French	as above	40	3	45	90
Farmington	2	1	19	0	....	....	....	....	....	....
(Center)	....	2	5	....	French	Chardeval	36	5	20	60
Farmington	4	1	21	0	....	....	....	....	....	....
(Unionville)	....	2	14	0	....	....	....	....	....	....
	....	3	13	0	....	....	....	....	....	....
	....	4	11	0	....	....	....	....	....	....
Greenwich	3	1	29	0	...	....	....	....	....	....
	....	2	12	12	German	Harris	40	4	45	120
	....	3	16	11	German	Selected Authors.	40	5	45	120
Guilford[4]	3	1	10	0	....	....	....	....	....	....
	....	2	14	0	..	....	....	....	....	....
	....	3	5	0	German	....	....	....	....	....
Hartford	4	1	285	47	French	....	40	5	45	....
				39	German	....				
	....	2	166	38	French	....	40	5	45	....
				19	German	....				
	....	3	122	68	French	....	40	5	45	....
				6	German	....				
	....	4	115	73	French	....	40	5	45	....
				7	German	....				

[1] Pupils of any class may take French. The course is for one year. No German is taught.

[2] In the first and second years every one takes either French or Latin. In the last two years everyone takes either German or Latin. The intention is to make the modern courses full studies.

[3] There is sight reading. Poems are committed to memory.

[4] German is an elective in Senior year. In the last four years it has been called for but in one year.

TABLE VIII — MODERN LANGUAGES — CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
Huntington[1].....	4	1	16	0	....	....	....	....	....	....
	....	2	4	....	German	....	....	5	35	60
	....	3	8	....	German	....	....	5	35	60
	....	4	7	....	German	....	....	5	35	60
Killingly..........	4	1	24	13	French	....	....	....	....	....
	....	2	15	2	French	....	....	....	....	....
	....	3	16	....	....	....	38	5	40	....
	....	4	8	....	....	....	38	5	40	....
Madison..........	4	1	5	0	....	....	....	....	....	....
	....	2	7	0	....	....	....	....	....	....
	....	3	2	0	....	....	....	....	....	....
	....	4	6	0	....	....	....	....	....	....
Manchester[2]......	4	1	23	0	....	....	....	....	....	....
	....	2	26	0	....	....	....	....	....	....
	....	3	14	12	French	Various...........	38	5	40	90
				5	German	Various...........	38	5	40	90
	....	4	9	6	French	....	38	5	40	90
				4	German	....	38	5	40	90
Meriden..........	4	1	114	0	....	....	....	....	....	....
	....	2	88	52	German	....	40	....	40	....
	....	3	50	35	German	....	40	....	40	....
				17	French	....	40	....	40	....
	....	4	33	16	German	....	40	....	40	....
				16	French	....	40	....	40	....
Middletown......	4	1	72	4	German	....	38	5	45	90
				3	French	....	38	5	45	90
	....	2	62	4	German	....	38	5	45	90
				10	French	....	38	5	45	90
	....	3	38	21	German or French	....	38	5	45	90
	....	4	41	18	German or French	....	38	5	45	90
Milford	3	1	21	0	....	....	....	....	....	....
	....	2	24	0	....	....	....	....	....	....
	....	3	9	0	....	....	....	....	....	....
Naugatuck.......	4	1	37	10	....	....	....	....	....	....
	....	2	15	20	German	Collar..............	40	5	45	....
	....	3	15		....	....	....	....	....	....
	....	4	5	0	....	....	....	....	....	....
New Britain......	4	1	102	17	German	Joynes-Meisner...	40	5	45	60
	....	2	73	6	German	....	40	4	45	60
	....	3	53	48	French	Chardeval.........	40	5	45	60
	....	4	34	26	French	....	40	4	45	60
New Canaan.....	2	1	13	0	....	....	....	....	....	....
	....	2	5	0	....	....	....	....	....	....
New Hartford....	3	1	6	0	....	....	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
New Haven......	4	1	220	42	German	....	40	4	45	....
	....	2	119	95	German	....	40	4	45	....
	....	3	171	115	German or French	....	40	4	45	....
	....	4	138	98	German or French	....	40	4	45	....
New Milford.....	2	1	13	0	....	....	....	....	....	....
	....	2	3	0	....	....	....	....	....	....
North Canaan....	2	1	7	0	....	....	....	....	....	....
	....	2	15	15	German	Harris, Joynes....	....	3	30	....
Old Saybrook....	3	1	11	0	....	....	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	6	0	....	....	....	....	....	....
Orange[3]..........	2	1	20	0	....	....	....	....	....	....
	....	2	26	0	....	....	....	....	....	....
Plymouth........	3	1	7	0	....	....	....	....	....	....
	....	2	5	0	....	....	....	....	....	....
	....	3	15	0	....	....	....	....	....	....
Plymouth........	3	1	15	0	....	....	....	....	....	....
	....	2	11	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
Portland..........	3	1	10	0	....	....	....	....	....	....
	....	2	3	0	....	....	....	....	....	....
	....	3	6	0	....	....	....	....	....	....

[1] In the three classes fourteen take the German.

[2] Six sophomores doing well in English were allowed to take modern language.

[3] The course is about to be lengthened and German introduced.

TABLE VIII — MODERN LANGUAGES — CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
Portland	3	1	8	0	....	....	....	....	....	....
	....	2	7	8	German	Stern	40	4	40	90
	....	3	5	0	....	....	....	....	....	....
Putnam	4	1	30	20	French	....	....	....	....	....
	....	2	13	....	....	....	....	....	....	....
	....	3	18	....	....	....	....	....	....	....
	....	4	14	....	....	....	....	....	....	....
Salisbury (Lakeville)	3	1	21	0	....	....	....	....	....	....
	....	2	2	5	German	....	40	5	40	75
	....	3	8	....	....	....	....	....	....	....
Saybrook	3	1	23	0	....	....	....	....	....	....
	....	2	8	0	....	....	....	....	....	....
	....	3	9	0	....	....	....	....	....	....
Seymour[1]	4	1	13	....	German	....	....	....	....	....
	....	2	6	....	....	....	....	....	....	....
	....	3	9	....	....	....	....	....	....	....
	....	4	7	....	....	....	....	....	....	....
Southington	4	1	38	0	....	....	....	....	....	....
	....	2	38	0	....	....	....	....	....	....
	....	3	26	21	French	Chardeval	36	5	40	60
	....	4	33	18	French	....	22	5	40	60
South Windsor (Wapping)	3	1	5	5	German	Otis	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	8	0	....	....	....	....	....	....
South Windsor (Town)	3	1	6	0	....	....	....	....	....	....
	....	2	6	0	....	....	....	....	....	....
	....	3	3	2	French	Chardeval	36	5	25	90
Stafford	4	1	19	0	....	....	....	....	....	....
	....	2	25	0	....	....	....	....	....	....
	....	3	13	....	French	....	36	5	35	60
					German	....	36	3	35	60
	....	4	13	11	French	....	36	5	35	60
					German	....	36	3	35	60
Stamford	4	1	72	0	....	....	....	....	....	....
	....	2	42	33	German	....	....	....	....	...
	....	3	36	....	....	....	40	....	45	....
	....	4	24	....	German	....	....	....	....	....
Stonington (No. 3)	3	1	10	0	....	....	....	....	....	....
	....	2	5	0	....	....	....	....	....	....
	....	3	5	0	....	....	....	....	....	....
Stonington (No. 9)	3	1	18	0	....	....	....	....	....	....
	....	2	7	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
Stratford	2	1	25	0	....	....	....	....	....	....
	....	2	9	0	....	....	....	....	....	....
Thomaston	3	1	11	0	....	....	....	....	....	....
	....	2	15	0	....	....	....	....	....	....
	....	3	6	0	....	....	....	....	....	....
Torrington	4	1	50	0	....	....	....	....	....	...
	....	2	23	0	....	....	....	....	....	....
	....	3	16	16	Fr. or Ger.	....	40	3	40	....
	....	4	15		Fr. or Ger.	....	40	3	40	....
Vernon	4	1	49	....	....	....	....	....	....	....
	....	2	29	30	French	....	....	5	40	90
	....	3	21		....	....	....	....	....	....
	....	4	20	....	....	....	....	....	....	....
Wallingford	4	1	21	0	....	....	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	8	....	....	....	....	5	40	....
	....	4	10	....	....	....	....	....	....	....
Waterbury	4	1	163	14	German	....	40	5	40	75
	....	2	63	18	German	....	40	5	40	75
	...	3	40	7	German	....	40	5	40	75
	....	4	10	3	German	....	40	5	40	75

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[1] This study is also taught outside of school hours.

TABLE VIII — MODERN LANGUAGES — CONCLUDED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
West Hartford...	4	1	17	....	....	....	....	...	....	....
	....	2	11	....	...	....	....	....	....	....
	....	3	4	....	....	....	....	....	....	....
	....	4	4	....	....	....	....	....	....	....
Wethersfield.....	2	1	16	0	...	....	....	....	....	....
	....	2	8	0	....	....	....	....	....	....
Windham........	4	1	49	0	....	....	....	....	....	....
	....	2	31	3	....	....	....	....	....	....
	....	3	24	21	French	....	....	....	....	....
	....	4	16	13	French	....	....	....	....	....
Windsor	4	1	20	0	....	....	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	7	10	German	....	....	....	....	....
	....	4	4							
Windsor Locks..	2	1	7	0	....	....	....	....	....	....
	....	2	7	0	....	....	....	....	....	....

LATIN

TABLE XI

Latin is studied in every high school. The courses are well organized, having in view entrance to college. Those who do not go to college are given no other or different training from college candidates.

The principal usually instructs in this subject, and everywhere the best of the teaching staff is engaged in preparing for college.

The whole number of scholars registered at the time the information was gathered was 4,879.

Of these, 3,320, or 69 per cent., were studying Latin.

In most schools Latin claims five periods a week for four years.

About 75 per cent. of the scholars are studying Latin, and not less than 20 per cent. of the school time is given to this subject.

TABLE IX — LATIN

TOWN	No. of years in course	What year of course	No. pupils in this year	No. pupils studying subject	Author	Text	How many weeks	How many recitations per week	Recitation, how many minutes long	Probable time (minutes) spent in study	Tot. No. rec. in all sub. pr. wk. as pr. program	No. Latin rec. per week	Per cent.	How many went to college last year	Is Lat. taught in grades below the H. School	Total No. scholars	No. studying Latin	Per cent. studying Latin
Ansonia	4	1	35	35	Latin Les.	Collar & D.	40	5	40	....	....	..	..	....	No	....	....	..
	..	2	17	17	Cæsar Latin Prose	Harper & T. Moulton	40	5	40	....	....	..	..	....	....	....	....	..
	..	3	9	6	Vergil	Greenough	40	5	40	....	....	..	..	....	....	....	....	..
	..	4	10	7	Cicero Latin Prose	Kelsey Jones	27 12	5	40	....	....	..	..	....	....	71	65	92
Bethel	3	1	25	12	Latin Les.	Collar & Daniell	40	5	45	90	....	..	..	....	....	....	....	..
	..	2	23	16	Cæsar	Allen & G.	40	5	45	90	....	..	..	....	....	....	....	..
	..	3	10	6	Cicero	Allen & G.	40	5	45	90	....	..	..	....	....	....	....	..
	..	..	....	....	Vergil	To be adopted	....	5	45	90	....	15	..	0	No	58	34	59
Branford[1]	3	1	14	10	Easy Latin Les.	Harkness	38	4	40	40	....	..	..	....	....	....	....	..
	..	..	....	10	Gate to Cæsar	Collar	10	....	40	40	....	..	..	....	....	....	....	..
	..	2	11	11	Cæsar	H. & Tolman's	26	5	40	45	....	..	..	....	....	....	....	..
	..	3	9	....	Cicero	Allen & G.	15	5	40	60	....	..	..	....	....	....	....	..
	..	..	....	....	Vergil	H. & Tolman's	15	....	40	60	90	15	17	0	No	34	30	88
Bridgeport[2]	4	1	157	107	First Lessons Cæsar	Scudder Kelsey	40	5 4	40	90	....	..	..	....	....	....	....	..
	..	2	76	67	Cæsar Nepos	Kelsey Rolfe	40	4	40	90	....	..	..	....	....	....	....	..
	..	3	53	31	Cicero	Allen & G.	40	4	40	90	....	..	..	....	....	....	....	..
	..	4	50	31	Vergil Ovid	Greenough & K.	40	4	40	90	....	..	..	8	....	336	236	70
Bristol[3]	4	1	42	26	Bellum Helveticum	Lowe & Butler	40	5	40	90	....	..	..	....	....	....	....	..
	..	2	18	10	Cæsar	Allen & Greenough	40	5	40	90	....	..	..	....	....	....	....	..
	..	3	21	5	Vergil	Greenough & Kitt.	40	5	40	90	....	..	..	....	....	....	....	..
	..	4	16	5	Cicero	Allen & Greenough	40	5	40	90	..	..	..	11	No	113	44	39
Canton (Collinsville)[4]	3	1	9	11	Latin Les.	Collar & D.	40	4	40	60	....	..	..	....	....	....	....	..
	..	2	14	9	Viri Romæ Nepos	....	40 40	4 4	40 40	60 60	....	..	..	....	....	....	....	..
	..	..	....	....	Latin Comp.	Collar	40	4	40	60	....	..	..	....	....	....	....	..
	..	3	11	9	Cicero	....	30	5	40	60	....	..	..	....	....	....	....	..
	..	..	....	....	Ovid	....	10	5	40	60	....	..	..	....	....	....	....	..
	..	..	....	....	Cæsar	....	....	5	40	60	80	15	19	0	No	34	29	85
	..	..	....	....	Vergil	....	....	....	....	....	....	..	..	....	....	....	....	..
Cromwell	2	1	4	0	....	....	....	....	....	....	....	..	..	....	....	....	....	..
	..	2	7	0	....	....	....	....	....	....	63	0	..	....	No	....	....	..
Danbury[5]	3	1	51	....	Latin Les.	Tuell & Fowler	40	5	40	90	....	..	..	....	....	....	....	..
	..	..	....	....	Cæsar	....	40	5	40	90	....	..	..	....	....	....	....	..
	..	2	26	....	Cæsar	....	40	5	40	90	....	..	..	....	....	....	....	..
	..	..	....	....	Cicero	....	40	5	40	90	....	..	..	....	....	....	....	..
	..	3	25	....	Cicero	....	40	5	40	90	....	..	..	....	....	....	....	..
	..	..	....	....	Vergil	....	40	5	40	90	....	..	..	1	No	102	41	40
Derby[6]	4	1	20	....	Latin Les.	Tuell & Fowler	....	5	40	60	....	..	..	....	....	....	....	..
	..	2	16	....	Cæsar	Harper	....	5	40	120	....	..	..	....	....	....	....	..
	..	..	....	....	Composition	Daniell	....	5	40	....	....	..	..	....	....	....	....	..
	..	3	12	....	Vergil	....	....	5	40	....	....	..	..	....	....	....	....	..
	..	..	....	....	Cicero	....	....	5	40	....	....	..	..	....	....	....	....	..
	..	4	1	....	Cicero	....	....	5	40	....	....	..	..	....	....	....	....	..
	..	..	....	....	Ovid	....	....	5	40	....	....	..	..	....	....	....	....	..

The number of weekly recitations of all kinds and of Latin recitations from which the percentage is derived are sometimes approximated and may vary from the actual number a little.

[1] The four pupils who do not take Latin study German.

[2] Latin Composition (Daniell's) throughout the course. While there are but four statedly prepared lessons weekly, the classes meet a fifth time, at which meeting the instructor may be said to recite, — discussing matters of general interest, lecturing and broadening the outlook.

Beside the eight graduates going to college last year, three others went to medical schools.

[3] There is Latin prose composition for those whose eye is collegeward. Latin must be dropped at end of second year if the student be not going to college.

[4] Pupils going to college spend at least one more year in the High School. Each of the six (5 b., 1 g.) who went to college in '94 spent six years in the High School. Experience has convinced the principal that Cæsar is better enjoyed if read at sight at the close of the course. The continual interchange of classes made necessary in fitting for college renders exact tabulation of classes and subjects impossible. The lowest class is of grammar grade. There are but 34 pupils of High School grade.

[5] Every pupil is required to take English and Mathematics, and is allowed to choose between Latin and Science. Those going to college read privately and additionally Cæsar and Vergil, which are not read in sufficient amount for admission in the short school course.

[6] It may be said that there are three school courses, — academic, scientific, general, having each such aim as the words imply. These three courses are merged in practice; the Latin authors used in the last two years being interchanged as need demands.

TABLE IX — COURSE IN LATIN — CONTINUED

TOWN	No. of years in course	What year of course	No pupils in this year	No. pupils studying subject	Author	Text	How many weeks	How many recitations per week	Recitation, how many minutes long	Probable time (minutes) spent in study	Tot. No. rec. in all sub. pr. wk. as pr. program	No. Latin rec. per week	Per cent.	How many went to college last year	Is Lat. taught in grades below the H. School	Total No. scholars	No. studying Latin	Per cent. studying Latin
East Hartford[1]..	3	1	15	4	Elementary Book	Tuell & F.	36	5	35	90	....	...	..	....	....	....	...	..
	..	2	21	11	Cæsar	Allen & G.	36	5	35	90	....	...	..	....	....	....	...	..
	..	3	7	1	Cæsar	....	....	....	....	....	....	...	..	....	....	43	16	37
Enfield....... ..	4	1	15	12	Latin Les.	Collar & D.	40	5	45	100	....	...	..	....	....	....	...	..
	..	2	16	11	Cæsar	Harper & T.	40	5	45	100	....	...	..	....	....	....	...	..
	..	3	7	7	Cicero	Johnston	40	5	45	100	....	...	..	....	....	....	...	..
	..	4	4	2	Vergil	Greenough & K.	40	5	45	100	95	19	20	1	No	42	32	76
Farmington......	..	1	19	10	Six Weeks' Prep.	Whiton	36	5	20	....	....	...	..	....	....	24	11	46
(Center).......	..	2	5	1	Cæsar	Harkness	36	5	20	....	....	...	..	0	No	....	...	..
Farmington[2]....	4	1	19	18	Latin Les.	Tuell & F.	20	5	30	60	....	...	..	....	....	....	...	..
(Unionville)...	..	2	9	9	Viri Romæ, Nepos	Arrowsmith	40	3	40	120	....	...	..	....	....	....	...	..
	..	3	9	9	Cicero and Ovid	Allen & G.	40	5	40	90	....	...	..	....	....	....	...	..
	..	4	7	7	Vergil	Kittridge	30	5	40	90	....	18	..	0	No	44	43	99
Greenwich[3].....	4	1	29	22	Latin Les.	Collar & D.	40	5	45	90	....	...	..	....	....	....	...	..
	..	2	12	8	Cæsar	....	40	5	45	90	....	...	..	....	....	....	...	..
	..	3	16	12	Cicero	....	40	5	45	90	....	...	..	....	....	....	...	..
	..	4	0	....	....	....	....	....	....	....	203	38	19	0	No	57	42	74
Groton.........	4	1	....	12	Latin	Collar & D.	38	5	25	....	....	...	..	....	....	....	...	..
	..	2	....	11	Latin and Cæsar	Allen & G.	38	5	25	....	....	...	..	....	....	....	...	..
	..	3	....	6	Cæsar	Allen & G.	38	5	25	....	....	...	..	....	....	....	...	..
	..	4	....	7	Vergil	Allen & G.	38	5	25	....	....	...	..	0	....	47	36	77
Guilford[4].......	4	1	11	3	Latin Les.	Collar & D.	38	5	30	90	....	...	..	....	....	....	...	..
	..	2	10	0	Cæsar	Allen & G.	38	5	30	90	....	...	..	....	....	....	...	..
	..	3	14	3	Vergil	Allen & G.	38	5	30	90	....	...	..	....	....	....	...	..
	..	4	10	1	Cicero	Allen & G.	38	5	30	90	14	1	7	1	No	45	7	20
Hartford.......	4	1	285	208	Latin Les.	Collar & D.	40	5	45	100	....	...	..	....	....	....	...	..
	..	2	166	128	Cæsar	Allen & G.	40	5	45	100	....	...	..	....	....	....	...	..
	..	3	122	86	Cicero	Allen & G.	40	5	45	100	....	...	..	....	....	....	...	..
	..	4	115	68	Vergil	Freize	40	5	45	100	610	130	22	30	No	688	513	75
Huntington[5]....	4	1	16	....	Lessons	Collar & D.	38	5	35	90	....	...	..	....	....	....	...	..
(Shelton)......	..	2	4	....	Cæsar	....	38	5	35	90	....	...	..	....	....	....	...	..
	..	3	8	....	Vergil	....	38	5	35	90	....	...	..	....	....	....	...	..
	..	4	7	....	Cicero	....	38	5	35	90	70	20	28	2	No	35	30	86
Killingly........	4	1	24	10	Elementary Book	Tuell & Fowler	38	5	40	120	....	...	..	....	....	....	...	..
	..	2	15	7	Selections, Cæsar	Arrowsmith&Harper	38	5	40	120	....	...	..	....	....	....	...	..
	..	3	16	7	Cicero	Allen & G.	38	5	40	120	....	...	..	....	....	....	...	..
	..	4	8	8	Vergil	Allen & G.	38	5	40	120	....	...	..	4	No	63	32	50
Litchfield.......	4	1	13	9	Latin Les.	Lowe & Butler	38	5	35	90	....	...	..	....	....	....	...	..
	..	2	15	7	First Readings	Arrowsmith	38	5	35	90	....	...	..	....	....	....	...	..
	..	3	13	5	Cæsar	Allen & G.	38	3	35	90	....	...	..	....	....	....	...	..
	..	4	12	3	Cæsar, Cicero, Vergil	....	38	2	35	90	....	...	..	0	....	53	24	42
Madison[6].......	2	1	5	....	Latin Les.	Collar & D.	36	5	....	....	....	...	..	....	....	....	...	..
	..	..	....	....	....	....	....	....	....	....	....	...	..	....	....	....	...	..
Manchester[7]....	4	1	26	12	First Latin Book	Collar & D.	40	5	40	....	....	...	..	....	....	....	...	..
(S. Manchester)	..	2	32	12	Latin Readings	Arrowsmith	40	5	40	....	....	...	..	....	....	....	...	..
	..	3	14	10	Cicero	Kelsey	40	5	40	....	....	...	..	....	....	....	...	..
	..	4	8	5	Vergil and Ovid	Allen & G.	40	5	40	....	130	15	12	3	....	80	39	50
Meriden...... .	4	1	114	77	Latin Les.	Inter-Collegiate	40	5	45	120	....	...	..	....	....	....	...	..
	..	2	88	38	Cæsar	Inter-Collegiate	40	5	45	120	....	...	..	....	....	....	...	..
	..	3	45	34	Vergil	Greenough	40	5	45	120	....	...	..	....	....	....	...	..
	..	4	32	10	Cicero	....	40	5	45	120	255	45	18	10	....	179	159	89
Middletown.....	4	1	72	29	Latin Reader	Arrowsmith & W.	38	5	45	90	....	...	..	....	....	....	...	..
	..	2	62	42	Cæsar	Allen & G.	38	5	40	90	....	...	..	....	....	....	...	..
	..	3	38	15	Cicero	Allen & G.	28	5	45	90	....	...	..	....	....	....	...	..
					Vergil	Allen & G.	10	5	45	90	....	...	..	....	....	....	...	..
	..	4	41	20	Vergil	Allen & G.	28	5	45	90	....	...	..	....	....	....	...	..
	..	..	....	....	Ovid	....	28	5	45	90	184	38	21	6	Yes	213	106	50

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[1] There is also prose composition and sight-reading.

[2] English grammar may be chosen instead of Latin. One boy passed Yale examinations unconditioned, but entered a medical college instead.

[3] There are as yet no graduates; the fourth-year class is not yet organized; the school is yet young.

[4] The first class is practically of the grammar grade, yet if they choose may begin Latin. There was no class in Cicero at the time of visit in June because that author had been finished in April. For two year's none wished to take Latin, hence the absence of some classes in the programme.

[5] Pupils not going to college take German in the fourth year instead of Latin. German may be taken in place of Latin at about the middle of second year.

[6] There is but one Latin class at present.

[7] Classes are promoted in April; Latin begun in September; school visited in May.

TABLE IX — COURSE IN LATIN — CONTINUED

TOWN	No. of years in course	What year of course	No. pupils in this year	No. pupils studying subject	Author	Text	How many weeks	How many recitations per week	Recitation, how many minutes long	Probable time (minutes) spent in study	Tot. No. rec. in all sub. pr. wk. as pr. program	No. Latin rec. per week	Per cent.	How many went to college last year	Is Lat. taught in grades below the H. School	Total No. scholars	No. studying Latin	Per cent. studying Latin
Milford	3	1	21	9	Latin Les.	Tueli & F.	38	5	30	60	....	..	..	....	...	....	...	...
	..	2	24	12	Latin Les. and Cæsar	....	38	5	30	60	....	..	..	....	....	....	...	...
	..	3	9	9	Cæsar	....	25	5	30	60	70	15	21	0	No	54	30	56
Naugatuck[1]	4	1	37	25	Elementary Latin	....	40	5	45	90	....	..	..	....	....	....	...	...
	..	2	15	5	Cæsar	....	40	5	45	90	....	..	..	...	....	....	...	...
	..	3	15	8	Cicero	....	40	5	45	90	....	..	..	....	....	....	...	...
	..	4	5	....	Vergil	....	40	5	45	90	79	15	19	0	No	72	38	56
New Britain	4	1	102	40	First Latin Book	Collar & D.	40	5	45	60	....	..	..	....	....	....	...	...
	..	2	73	39	Cæsar	Allen & G.	40	5	45	60	....	..	..	....	....	....	...	...
	..	3	53	30	Vergil	Allen & G.	40	3	45	60	....	..	..	....	....	....	...	...
	..	..	....	....	Latin Prose	....	40	1	45	60	...	..	..	....	....	....	...	...
	..	4	34	15	Cicero	Allen & G.	40	3	45	60	....	..	..	....	....	....	...	...
	..	..	....	....	Latin Prose	....	40	1	45	60	....	..	..	...	....	262	124	47
New Canaan	2	1	13	13	Beginner's Book	Collar & D.	40	5	30	....	....	..	..	...	....	....	...	...
	..	2	5	5	Cæsar	....	40	5	30	....	45	10	22	0	No	18	18	100
New Hartford[2]	3	1	6	0	....	....	....	....	....	....	..	..	..	....	....	....	...	...
	..	2	4	2	Latin Les.	Collar & D.	36	4½	25	40	....	..	..	0	No	17	12	70
New Haven	4	1	220	178	Easy Latin Meth. Gate to Cæsar	Harkness Collar	40	5	45	90	....	..	..	....	....	....	...	...
	..	2	219	190	Cæsar	Allen & G.	40	5	45	90	....	..	..	....	....	....	...	...
	..	3	171	125	Vergil	Greenough	40	5	45	90	....	..	..	....	....	....	...	...
	..	4	138	85	Cicero	Allen & G.	40	5	45	90	....	..	..	54	No	748	578	77
North Canaan	..	1	7	0	....	....	....	....	....	....	....	..	..	....	....	....	...	...
	..	2	15	6	Easy Latin Method	Harkness	36	5	30	....	45	5	11	0	....	22	6	27
New Milford	2	1	13	13	Easy Method	Harkness	38	2	30	....	26	4	14	....	No	16	13	81
	..	2	3	0	....	....	....	....	....	....	..	..	..	....	....	....	...	...
Old Saybrook	3	1	11	11	First Year in Latin	Harkness	36	5	30	45	....	..	..	....	....	...	...	...
	..	2	4	4	Cæsar	....	36	5	40	45	....	..	..	....	....	....	...	...
	..	3	6	6	Vergil	....	36	5	30	60	....	..	..	0	No	21	21	100
Orange[3]	2	1	20	20	Latin Les.	....	38	5	40	....	....	..	..	....	....	....	...	...
(Union)	..	2	26	26	First Latin Readings	Arrowsmith	38	5	40	....	....	..	..	0	No	46	46	100
Plainville	3	1	15	11	First-Year Latin	Harkness	40	5	40	60	....		..	....	....	...	...	...
	..	2	16		Cæsar	Harkness	40	5	40	60	....	..	..	....	....	....	...	...
	..	3	6		Cicero	Harkness	40	5	40	60	65	10	15	0	....	37	11	30
Plymouth[4]	3	1	7	9	Elementary Book	Harkness	38	5	20	50	....	..	..	....	....	....	...	...
(No. 1)	..	2	5	4	Elementary Book	....	38	5	20	40	70	10	14	0	No	27	13	48
	..	3	15	....	....	....	....	....	....	....	....	..	..	....	....	....	...	...
Plymouth	3	1	15	7	Inductive Book	Harper & B.	36	5	30	150	....	..	..	....	....	....	...	...
(Terryville)	..	2	11	0	Cæsar	....	36	5	30	150	50	5	10	0	No	33	7	21
Portland	3	1	10	7	Latin Les.	Tuell & F.	40	5	30	50	....	..	..	....	....	....	...	...
(Gildersleeve)	..	2	3	....	Cæsar and Gradatim	Kelsey	40	5	30	60	..	..	..	....	....	....	...	...
	..	3	0	0	....	....	....	....	....	....	75	10	13	0	No	19	10	53
	..	4	6	....	....	....	....	....	....	....	....	..	..	....	....	....	...	...
Portland	4	1	12	12	Latin Les.	Tuell & F.	40	5	40	90	....	..	..	....	....	....	...	...
(No. 2)	..	2	8	8	Cæsar	Kelsey	40	4	40	90	....	..	..	....	....	...	...	...
	..	3	7	6	Vergil	Greenough & K.	40	5	40	90	....	..	..	....	....	....	...	...
	..	4	5	0	Cicero	....	....	....	....	....	80	14	18	0	No	32	26	81
Putnam	4	1	30	20	First-Book Viri Romæ	Scudder	40	5	40	120	....	..	..	...	....	....	...	...
	..	2	13	8	Cæsar Latin Comp.	Harper	40	5	40	120	....	..	..	....	....	....	...	...
	..	3	18	10	Cicero Latin Comp.	Keeley	40	5	40	120	....	..	..	....	....	....	...	...
	..	4	14	8	Vergil Ovid	....	40	..	....	....	....	..	..	4	....	75	46	61
Salisbury[5] (Lakeville)	3 ..	1 ..	21	21	Oral Instruction Latin Les. Gradatim	.... Comstock	40	4	25	30	....	..	..	....	....	....	...	...
	..	2	2	5	Gradatim Nepos Selec. from Cæs. Viri Romæ	....	40	4	30	45	60	9	15	0	No	31	26	84
	..	3	8	....	....	....	....	..	....	..	....	..	..	....	....	....	...	...

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[1] There are as yet on the full High School course no graduates, and none has gone to college.

[2] Cæsar (4½ books) and Vergil (1 book) are studied when pupils remain long enongh to graduate. No graduating class this year, one of its two members electing to attend the Hartford High School and the other going to no school.

[3] A third year is about to be added to the course. The reading in the third year will probably be Vergil.

[4] Classes do not maintain distinct organizations. There is no course and no graduation.

[5] A modest course with graduation. Pupils enter the Hotchkiss School to fit for college or for a fuller course.

TABLE IX — COURSE IN LATIN — CONTINUED

TOWN	No. of years in course	What year of course	No. pupils in this year	No. pupils studying subject	Author	Text	How many weeks	How many recitations per week	Recitation, how many minutes long	Probable time (minutes) spent in study	Tot. No. rec. in all sub. pr. wk. as pr. program	No. Latin rec. per week	Per cent.	How many went to college last year	Is Lat. taught in grades below the H. School	Total No. scholars	No. studying Latin	Per cent. studying Latin
Saybrook	3	1	23	0	....	....	....	...	....	....	....	..	..	....	....	...	...	...
	..	2	8	8	First Latin Book	Comstock	38	5	30	....	....	..	..	....	....	....	...	...
	..	3	9	9	Cæsar	Kelsey	27	5	30	....	....	..	..	..	....	....	...	...
	..	..	....	....	Cicero	....	11	5	30	....	45	10	22	0	No	40	17	43
Seymour[1]	4	1	13	25	Easy Method	Harkness	24	5	30	60	....	..	..	....	....	....	...	...
	..	2	6		Cæsar	Harkness	40	5	30	60	....	..	..	....		....	...	...
		3	9		....	....	....	....	....	....	....	..	..	....	....	....	...	...
	..	..	....		Cicero	....	40	5	30	60	....	..	..	....	....	....	...	...
	..	4	7		Vergil	....	40	5	30	60	....	..	..	....	...	35	25	71
Southington.....	4	1	38	24	First Book in Latin	Tuell & Fowler	36	5	40	60	....	..	..	....	....	...	...	...
	..	2	38	19	Cæsar	Kelsey	36	5	40	60	....	..		....	....	....	...	...
	..	3	26	16	Cicero	Kelsey	36	5	40	60	....	..	.	....	....	....	...	...
	..	4	33	10	Vergil	Comstock	36	5	40	60	150	20	13	1	No	135	69	51
South Windsor[2].	3	1	5	5	Elementary Lat. Bk.	Collar & D.	36	5	25	..	....	..	..	....	....	....	...	...
(Wapping)....	..	2	4	0	....	....	....	....	....	....	....	..	..	....	...	...	...	...
	..	3	8	8	Vergil	....	....	....	...	....	....	..	..	0	Yes	17	13	80
South Windsor[3].	3	1	6	5	Elementary Lat. Bk.	Collar & D.	36	5	25	60	....	..	..	....	....	....	...	...
(Town).......	..	2	6	4	Cæsar	Arrowsmith & W.	....	....	25	60	....	..	..	....	....	....	...	..
	..	3	3	3	....	....	....	....	25	....	....	..	..	0	Yes	15	12	80
Stafford	4	1	22	11	Elementary Les.	Collar & D.	36	5	35	90	....	..	..	....	....	....	...	...
	..	2	25	21	Cæsar and L. Comp.	....	36	5	35	90	..	..	..	....	....	....	...	...
		3	13	12	Cicero and L. Comp.	....	36	5	35	90	..	..	..	....	....	....	...	...
	..	4	13	5	Vergil	....	36	5	35	90	110	20	18	0	No	74	48	65
Stamford........	4	1	72	43	First Latin Book	Collar & D.	40	5	45	90	....	..	..	....		....	...	...
	..	2	42	33	Cæsar	Kelsey	40	5	45	90	....	..	..	....	....	....	...	...
	..	3	36	10	Vergil	Greenough & K.	40	5	45	90	....	..	..	....	....	....	...	...
	..	4	24	12	Cicero	Harkness	40	5	45	90	75	13	17	....	....	174	98	56
Stonington......	3	1	10	14	Elements	Buel	....	..	....	....	....	..	..	....	....	....	...	...
(No. 3).......		2	5		Cæsar	(3 books)	....	5	30	90	...	..	..	....	....	....	...	...
(Mystic).......	..	3	7		Vergii	(2 books).	....	....	....	....	....	..	..	0	No	22	14	64
Stonington[4].....	3	1	8	0	....	....	...	....	....	...	....	..	..	....	....	....	...	...
(No. 9).......	..	2	7	7	Latin Primer	Collar & D.	....	5	30	60	....	..	..	....	....	....	...	...
(Borough)	..	3	7	7	Cæsar	....	....	5	40	60	....	..	..	0	No	26	22	85
Stonington.....	4	1	10	0	....	....	....	....	....	..	....	..	..	....	....	....	...	...
(No. 18)......	..	2	9	12	Easy Latin	Harkness	36	5	30	45	..	..	..	....	....	....	...	...
(Westerly)....	..	3	3	1	Cæsar	Harkness	36	5	30	....	....	..	..	....	....	....	...	...
Stratford	2	1	25	25	Inductive Primer	Harper & B.	40	5	25	60	....	..	..	....	....	....	...	...
		2	9	9	Cæsar	Harper & T.	40	5	25	60	45	10	22	0	No	34	34	100
Thomaston[5]	3	1	11	14	Latin Les.	Jones'	36	5	35	90	....	..	..	....	....	...	...	...
	..	2	15	17	Cæsar	Allen & G.	36	5	35	90	....	..		....	....	...	..	...
	..	3	6	0	Cicero	Allen & G.	...	....	..	....	55	10	18	0	No	32	31	97
Torrington......	4	1	50	27	Latin Grammar Cæsar	.... Harper	40	5 4	40	90	....	..	..	....	....	....	...	...
	..	2	23	11	Cæsar	Harper	40	4	40	90	....	..	..	....	....	...	...	...
	..	3	16	8	Cicero	Harkness	40	4	40	90	....	..	..	...	....	....	...	...
	..	4	15	6	Vergil	Harper	40	5	40	90	....	..	..	7	....	110	56	51
Vernon[6]........	4	1	49	....	Latin Primer	Collar	28	5	40	120	....	..	..	....	....	....	...	...
	..	..	....	....	Cæsar	Allen & G.	12	5	40	120	....	..	..	....	..	....	...	...
	..	2	29	....	Cæsar	Allen & G.	28	5	40	120	....	..	..	....	....	....	...	...
	..	..	....	....	Cicero	Allen & G.	12	5	40	120	....	..	..	....	....	....	...	...
	..	3	21	....	Cicero	Allen & G.	28	5	40	120	....	..	..	....	....	....	...	...
	..	..	....	....	Ovid	Allen & G.	12	5	40	120	....	..	..	....	....	....	...	...
	..	4	20	....	Vergil	Greenough & K.	40	5	40	120	146	24	16	4	No	135	56	41
Wallingford	4	1	21	20	Latin Les.	....	40	5	40	90	15	5	33	...	....	....	...	...
	..	2	17	10	Cæsar	....	40	5	40	90	18	5	28	....	..	....	...	...
	..	3	8	7	Cicero	....	40	5	40	90	18	5	28	....	....	....	...	...
	..	4	10	6	Vergil	....	40	5	40	90	18	5	28	2	No	56	43	77
Waterbury......	4	1	163	65	Latin Les.	Collar & D.	40	5	40	60	....	..	..	....	....	....	...	...
	..	2	63	68	Cæsar	....	40	5	40	120	....	..	..	....	....	....	...	...
	..	3	40	21	Vergil	....	40	5	40	120	....	.	..	....	....	...	...	...
	..	4	10	10	Cicero and Ovid	....	40	5	40	60	226	35	15	4	....	276	164	59

[1] Latin is obligatory for 1⅔ years.

[2] In South Windsor Latin is optional in the highest grammar grade. Six pupils take it, reciting three times weekly.

[3] There are but two Latin classes.

[4] Nearly three books of Cæsar are finished.

[5] Another year is about to be added to the course. The classes are in process of reorganization, which fact accounts for no third-year pupils in this study and for greater numbers in the Latin classes of first and second year than there are in those school years.

[6] Latin prose composition for three years.

TABLE IX—COURSE IN LATIN—CONCLUDED

TOWN	No. of years in course	What year of course	No. pupils in this year	No. pupils studying subject	Author	Text	How many weeks	How many recitations per week	Recitation, how many minutes long	Probable time (minutes) spent in study	Tot. No. rec. in all sub. pr. wk. as pr. program	No. Latin rec. per week	Per cent.	How many went to college last year	Is Lat. taught in grades below the H. School	Total No. scholars	No. studying Latin	Per cent. studying Latin
West Hartford..	4	1	17	9	Latin Les.	Collar & D.	37	5	40	120	....	..	..	....	....	....	...	...
	..	2	11	3	Cæsar	Harkness	37	5	40	120	....	..	..	....	....	....	...	...
	..	3	4	4	Cicero	Harkness	37	5	40	120	....	..	..	....	....	....	...	...
	..	4	4	4	Vergil	Greenough	37	5	40	120	....	..	..	....	No	60	35	58
Wethersfield....	2	1	16	5	First Latin Book	Collar & D.	....	5	30	....	....	..	..	....	....	....	...	...
	..	2	8	5	Cæsar	Allen & G.	....	....	30	....	60	10	17	0	....	24	10	42
Windham.......	4	1	49	31	Inductive Method	Harper	40	5	40	120	....	..	..	....	....	....	...	...
	..	2	31	13	Cæsar	....	40	5	40	120	....	..	..	....	....	....	...	...
	..	3	24	7	Vergil	....	40	5	40	120	....	..	..	....	....	....	...	...
	..	4	16	4	Cicero	....	40	5	40	120	....	..	..	2	....	120	55	46
Windsor........	4	1	20	9	Latin Les.	Collar & D.	37	5	40	60	....	..	..	....	....	....	...	...
	..	2	17	5	Cæsar	....	37	5	40	60	....	..	..	....	....	....	...	...
	..	3	7	5	Cicero	....	37	5	40	60	....	..	..	....	....	....	...	...
	..	4	4	2	Vergil	....	37	5	40	60	....	..	..	0	....	48	21	44
Windsor Locks..	2	1	7	0	....	....	....	....	....	....	....	..	..	....	....	....	...	...
	..	2	7	3	First Book	Collar & D.	39	5	30	....	....	..	..	0	....	14	3	21

Greek

TABLE X

This language is taught in 22 schools. The number of scholars is 466.

All are preparing for college.

TABLE X—GREEK

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
Ansonia	4	1	35	0	....	....	....	....	....	....
	....	2	17	2	Lessons	....	40	5	40	....
	....	3	9	1	Anabasis	....	40	5	40	....
	....	4	10	1	Homer	....	40	5	40	....
Bethel	3	1	25	0	....	....	....	....	....	....
	....	2	23	0	....	....	....	....	....	....
	....	3	10	0	....	....	....	....	....	....
Branford	3	1	14	0	....	....	....	....	....	....
	....	2	11	0	....	....	...	....	....	....
	....	3	9	0	....	....	....	....	....	....
Bridgeport	4	1	157	0	....	....	....	....	....	....
	....	2	76	20	Lessons	White	40	4	40	full
	...	3	53	10	Anabasis	Boisé	40	4	40	full
	....	4	50	9	Iliad	Seymour	40	4	40	full
Bristol	4	1	42	0	...	....	....	....	....	....
	....	2	18	0	Beginner's Book	White	40	5	45	80
	....	3	21	1	Anabasis	Harper	40	5	45	80
	....	4	16	4	Homer	Keep	40	5	45	80
Canton[1]	4	1	31	0	....	....	....	....	....	....
	....	2	9	....	Lessons	....	....	....	....	....
	....	3	14	....	Anabasis	....	....	....	....	....
	....	4	11	....	Iliad	....	....	....	....	....
Danbury[2]	3	1	....	0	....	....	....	....	....	....
	....	2	51	....	Lessons	Goodwin	24	....	....	....
	....	....	....	....	Anabasis	....	16	....	....	....
	....	3	26	....	Anabasis	....	....	....	....	....
	....	....	....	...	Iliad	....	....	....	....	....
Derby[3]	4	1	20	0	....	....	....	....	....	....
	....	2	16	10	Lessons	Keep	.	5	40	60
	....	3	12		Anabasis	Kelsey	....	5	40	120
	....	4	1		Iliad	Keep	....	5	40	120
East Hartford	3	1	15	0	....	....	....	....	....	....
	....	2	21	0	...	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
Enfield	4	1	27	0	....	....	....	....	....	....
	...	2	13	6	Lessons Anabasis	White	40	....	45	....
	....	3	19	6	Anabasis Odyssey	Kelsey White	40	....	....	....
	....	4	7	2	Iliad	Seymour or Keep	40	....	....	....
	....	....	....	....	Hellenica	Bennett	....	....	....	....
Farmington (Center)	3	1	17	0	....	....	....	....	....	....
	....	2	19	0	....	....	....	....	....	....
	....	3	5	0	....	....	....	....	....	....
Farmington[4] (Unionville)	4	1	21	....	....	....	....	....	....	....
	....	2	14	....	....	....	....	....	....	....
	....	3	13	....	....	....	....	....	....	....
	....	4	10	....	....	....	....	....	....	....
Greenwich	3	1	29	0	....	....	....	....	....	....
	....	2	12	0	Lessons	White	....	....	....	....
	....	3	16	5	Anabasis	Goodwin	40	4	45	120
Guilford[5]	3	1	10	0	....	....	....	....	....	....
	....	2	14	0	....	....	....	....	....	....
	....	3	5	0	....	....	....	....	....	....
Hartford	4	1	285	0	....	....	....	....	....	....
	....	2	166	36	Lessons	....	40	5	45	....
	....	3	122	34	Attic Prose	....	40	5	45	....
	....	4	115	27	Iliad or	....	40	5	45	....
	....	....	....	....	Odyssey	....	40	5	45	....

Wherever the time is not given it is presumed to be the usual full period of 40 or 45 minutes daily for the entire year.

[1] The total number studying Greek is three. No pupil has graduated with a knowledge of Greek who has not spent six years in school. Much of the Greek is taught without school hours.

[2] Ten pupils (5 b. and 5 g.) take Greek: only those who have done well in one year in Latin allowed to take it.

[3] Ten boys in all take Greek. A little of the Anabasis is taught within the first year.

[4] If Greek be taught it is taught without school hours.

[5] It will be taught if called for.

TABLE X — GREEK — CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
Huntington	4	1	16	0	....	....	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	8	0	....	....	....	....	....	....
	....	4	7	0	....	....	....	....	....	....
Killingly	4	1	24	0	....	....	....	....	....	....
	....	2	15	3	Lessons	Graves & Hawes	38	4	40	....
	....	3	16	....	....	....	....	....	....	....
	....	4	8	5	Homer	Seymour	38	5	40	....
Madison	4	1	5	0	....	....	....	....	....	....
	....	2	7	0	....	....	....	....	....	....
	....	3	2	0	....	....	....	....	....	....
	....	4	6	0	....	....	....	....	....	....
Manchester	4	1	23	0	....	....	....	....	....	....
	....	2	26	3	Lessons	....	38	5	40	90
	....	3	14	2	Anabasis	....	38	5	40	90
	....	4	9	3	Iliad	....	38	5	40	90
Meriden	4	1	114	0	....	....	....	....	....	....
	....	2	88	10	Lessons	....	40	....	40	....
	....	3	50	6	Anabasis	....	40	....	40	....
	....	4	33	3	Iliad	....	40	....	40	....
Middletown	4	1	72	0	....	....	....	....	....	....
	....	2	62	6	Lessons	White	38	5	45	90
	....	3	38	4	Anabasis	Goodwin	38	5	45	90
	....	4	41	3	Homer	....	19	5	45	90
Milford	3	1	21	0	....	....	....	....	....	....
	...	2	24	0	....	....	....	....	....	....
	....	3	9	0	....	....	....	....	....	....
Naugatuck	4	1	37	0	....	....	....	....	....	....
	....	2	15	0	....	....	....	....	....	....
	....	3	15	0	....	....	....	....	....	....
	....	4	5	0	....	....	....	....	....	....
New Britain	4	1	102	0	....	....	....	....	....	....
	....	2	73	11	Lessons	White	40	5	45	60
	....	3	53	7	Anabasis	Kelsey	40	5	45	60
	....	4	34	5	Homer	Keep	40	5	45	60
New Canaan	2	1	13	0	....	....	....	....	....	....
	.. .	2	5	0	....	....	....	....	....	....
New Hartford	3	1	6	0	....	....	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
New Haven[1]	4	1	220	0	....	....	....	....	....	....
	....	2	119	55	Beginners Book Anabasis	White Goodwin	....	....	....	....
	....	3	171	43	Anabasis	Goodwin	....	....	....	....
	....	4	138	17	Iliad	Seymour	....	....	....	....
New Milford	2	1	13	0	....	....	....	....	....	....
	....	2	3	0	....	....	....	....	....	....
North Canaan	2	1	7	0	....	....	....	....	....	....
	....	2	15	0	....	....	....	....	....	....
Old Saybroook	3	1	11	0	....	....	....	....	....	....
	....	2	4	0	....	....	....	....	....	....
	....	3	6	0	....	....	....	....	....	....
Orange	2	1	20	0	....	....	....	....	....	....
(Union)	....	2	26	0	....	....	....	....	....	....
Plymouth	3	1	7	0	....	....	....	....	....	....
	....	2	5	0	....	....	....	....	....	....
	...	3	15	0	....	....	....	....	....	....
Plymouth	3	1	15	0	....	....	.. :	....	....	....
(Terryville)	....	2	11	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
Portland	3	1	10	0	....	....	....	....	....	....
(Gildersleeve)	....	2	3	2	Lessons	White	40	5	30	60
	....	3	6	0	....	....	....	....	....	....
Portland	3	1	8	6	Lessons	White	40	5	40	90
(Dist. 2)	....	2	7	2	Anabasis	Kelsey	40	5	40	90
	....	3	5	0	Homer	....	....	....	....	....

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[1] In the first year of the study eighty-two chapters of White's book and eight chapters of the Anabasis were read. For particulars see Superintendent's Report.

TABLE X — GREEK — CONTINUED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No minutes to each recitation	No. minutes probably spent in preparation
Putnam..........	4	1	30	0	....	....	....	....	....	...
	....	2	13	3	Lessons	White..............	40	4½	40	120
	....	3	18	7	Anabasis	....	40	....	40	120
	....	4	14	3	Iliad	....	40	....	40	120
Salisbury.........	3	1	21	0	....	....	....	....	....	....
(Lakeville)......	....	2	2	0	....	....	....	....	....	....
	....	3	8	0	....	....	....	....	....	....
Saybrook.........	3	1	23	0	....	....	....	....	....	....
(Deep River)...	....	2	8	0	....	....	....	....	....	....
	....	3	9	0	....	....	....	....	....	....
Seymour[1]........	4	1	13	0	....	....	....	....	....	....
	....	2	6	....	....	....	....	....	....	....
	....	3	9	....	....	....	....	....	....	....
	....	4	7	....	....	....	....	....	....	....
Southington[2].....	4	1	38	....	....	....	....	....	....	....
	....	2	38	....	....	....	....	....	....	....
	....	3	26	....	....	....	....	....	....	....
	....	4	33	....	....	....	....	....	....	....
South Windsor...	3	1	5	0	....	....	....	....	....	....
(Wapping)......	....	2	4	0	....	....	....	....	....	....
	....	3	8	0	....	....	....	....	....	....
South Windsor...	3	1	6	0	....	....	....	....	....	....
	....	2	6	0	....	....	....	....	....	....
	....	3	3	0	....	....	....	....	....	....
Stafford..........	4	1	19	0	....	....	....	....	....	....
	....	2	25	5	Lessons	White..............	36	5	35	90
	....	3	13	2	Anabasis	....	36	5	35	90
	....	4	13	3	Homer	....	36	5	35	90
Stamford.........	4	1	72	0	....	....	....	....	....	....
	....	2	42	7	Lessons	....	40	....	45	....
	....	3	36	5	Anabasis	....	....	....	....	....
	....	4	24	4	Iliad	....	....	....	....	....
Stonington.......	3	1	10	0	....	....	....	....	....	....
(No. 3)..........	....	2	5	0	....	....	....	....	....	....
(Mystic).........	....	3	5	0	....	....	....	....	....	....
Stonington.......	3	1	18	0	....	....	....	....	....	...
(No. 9)..........	....	2	7	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
Stratford.........	2	1	25	0	....	....	....	....	....	....
	....	2	9	0	....	....	....	....	....	....
Thomaston.......	3	1	11	0	....	....	....	....	....	....
	....	2	15	4	Lessons	White..............	36	5	30	60
	....	3	6	0	....	....	....	....	....	....
Torrington.......	4	1	50	0	....	....	....	....	....	....
	....	2	23	2	Lessons	....	40	5	40	....
	....	3	16	4	Anabasis	....	40	5	40	....
	....	4	15	3	Iliad	....	40	5&2	40	....
Vernon...........	4	1	49	0	....	....	....	....	....	....
	....	2	29	16	Lessons	White..............	40	5	40	....
	....	3	21		Anabasis	Goodwin...........	40	5	40	....
	....	4	20		Iliad	Seymour..........	40	5	40	....
Wallingford......	4	1	21	0	....	....	....	...	...	....
	....	2	17	3	Lessons	....	....	5	40	....
	....	3	8	4	Anabasis	....	....	5	40	...
	....	4	10	1	Iliad	....	....	5	40	....
Waterbury.......	4	1	163	0	....	....	....	....	....	....
	....	2	63	13	Lessons	White..............	40	5	40	90
	....	3	40	9	Anabasis	....	40	5	40	90
	....	4	10	7	Homer	....	40	5	40	90
Wethersfield.....	2	1	16	0	....	....	....	....	....	....
	....	2	8	0	....	....	....	....	....	....

[1] This study is extra and is not given in school hours. One pupil is now studying Greek.

[2] Two boys are now studying Greek. It is an extra and has no connection with school hours.

TABLE X — GREEK — CONCLUDED

TOWN	Years in course	Year of course	No. pupils in this school year	No. pupils studying this subject	Subject	Text	No. weeks of study	No. recitations per week	No. minutes to each recitation	No. minutes probably spent in preparation
Windham........	4	1	49	0	....	....	....	....	....	....
	....	2	31	3	Lessons	....	40	5	....	....
	....	3	24	4	Anabasis	....	40	5	....	....
	....	4	16	3	Homer	....	40	5	....	....
Windsor..........	4	1	20	0	....	...	....	....	....	....
	....	2	17	0	....	....	....	....	....	....
	....	3	7	0	....	....	....	....	....	....
	....	4	4	0	....	....	....	....	....	....
Windsor Locks...	2	1	7	0	....	....	....	....	....	....
	....	2	7	0	....	....	....	....	....	....

MATHEMATICS

TABLE XI

In every school all scholars must study Algebra and Geometry.

The number studying these subjects is —

Algebra, 2,156.
Geometry, 1,301.
Solid Geometry and Trigonometry, 289.

TABLE XI—MATHEMATICS

TOWN	No. years in course	What year of course	Pupils in this school year	Pupils studying the subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation, minutes
Ansonia	4	1	35	35	Algebra	....	39	5	40	....
	....	2	17	17	Algebra	....	16	5	40	....
	....	....	....	17	Geometry	....	12	5	40	....
	....	3	9	4	Solid Geometry	....	15	5	40	....
	....	....	....	4	Trignometry	....	12	5	40	....
	....	4	10	4	Algebra	....	....	....	....	....
Bethel	3	1	25	25	Algebra	Bradbury-Eaton	40	5	45	120
	....	2	23	23	Algebra	Bradbury-Eaton	16	5	45	120
	....	....	....	23	Geometry	Bradbury	24	5	40	120
	....	3	10	10	Geometry	Bradbury	16	5	40	120
Branford[2]	3	1	14	14	Algebra	None	38	5	35	60
	....	2	11	11	Geometry	None	38	4	40	60
	....	3	9	9	Review	....	38	5	40	60
Bridgeport[3]	4	1	157	157	Algebra	Wentworth	40	4	40	90
	....	2	76	76	Algebra, Geometry	Wentworth	20	4	40	90
	....	3	53	22	Geometry Review	Wentworth	20	4	40	90
	....	4	50	32	Solid Geometry Trigonometry	Wentworth Bowser	20	4	40	90
	....	....	....	....	Geometry	Original text	20	4	45	90
Bristol[4]	4	1	42	42	Algebra	Milne	40	5	45	90
	....	2	35	....	Algebra	Milne	16	5	45	90
	....	....	....	....	Geometry	Wentworth	23	5	45	90
	....	3	25	25	Geometry	Wentworth	16	5	45	90
	....	4	18	....	Review	....	40	51	45	75
Canton	3	1	9	9	Algebra	....	40	5	40	90
	....	2	14	14	Geometry	Wells	40	5	40	90
	....	3	11	0	Review	....	....	....	....	....
Danbury[5]	3	1	51	51	Algebra	Wells Wentworth	40	5	40	90
	....	2	26	26	Algebra	Wentworth	16	5	40	90
	....	....	....	26	Geometry	....	24	5	40	90
	....	3	25	25	Geometry	....	16	5	40	90
Derby[6]	4	1	20	20	Algebra	Milne	40	5	40	90
	....	2	16	16	Geometry	Wentworth	20	5	40	90
	....	3	12	12	Geometry	Wentwcrth	20	5	40	90
	....	4	1	1	....	....	....	....	....	....
East Hartford	3	1	15	15	Algebra	Wentworth	36	....	35	90
	....	2	21	21	Geometry	....	36	....	35	120
	....	3	7	7	Algebra or Solid Geometry	....	36	....	35	....
Enfield	4	1	15	15	Algebra	Wentworth	40	5	40	90
(Thompsonville)	....	2	16	16	Geometry	Wentworth	40	5	40	90
	....	3	7	3	Solid Geometry	....	16	5	40	90
	....	4	4	....	Adv'nced Algebra	Wells	12	5	40	90

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[1] Bookkeeping is optional in third year. By special request of a member of the board the metric system is taught; it is taught in third year.

[2] The review in the third year consists of work in arithmetic, algebra, geometry.

[3] Elective work begins in the third year. Solid geometry and trigonometry in the fourth year are taken by those pupils who are preparing for the scientific department of college work; those going to the academic department take original work and a text review.

While the classes have but four stated prepared recitations per week, most, if not all of them meet a fifth time at which meeting original, extempore work may be done; there is, in other words, one unprepared lesson weekly.

[4] Trigonometry is given if one wishes it for college. The review in fourth year is confined to algebra and geometry. No arithmetic is studied.

[5] All pupils take the English and the mathematics, and choose as between the Latin and the science.

[6] Trigonometry and solid geometry are given to those college-bound. The metric system has been taught in the high school. American literature takes the place of any mathematical study in last half of the third year. Physics succeeds to that place in fourth year.

TABLE XI — MATHEMATICS — CONTINUED

TOWNS	No. years in course	What year of course	Pupils in this school year	Pupils studying the subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation, minutes
Farmington..... (Center)........	....	1	17	17	Arithmetic......	Franklin...	36	5	20	90
	....	2	19	19	Arithmetic......	Franklin...	36	5	20	90
	....	....	....	....	Algebra.........	Wentworth	10	5	20	60
	....	3	5	5	Algebra.........	Wentworth	36	5	20	90
Farmington..... (Unionville)...	4	1	21	21	Arithmetic......	Various....	30	5	40	60
					Algebra.........	Wentworth	10	2½	40	60
	....	2	14	14	Algebra.........	Wentworth	20	5	40	60
	....	....	....	14	Algebra.........	Wentworth	20	2½	40	60
	....	3	13	13	Algebra.........	Wentworth	10	5	40	60
	....	....	....	13	Geometry.......	Wentworth	30	5	40	120
	....	4	10	10	Arithmetic......	Commercial	20	1	40	....
Greenwich[1].....	4	1	29	29	Algebra.........	Wells......	40	5	45	120
	....	2	12	12	Algebra.........	Wells......	40	4	45	120
	....	3	16	16	Geometry.......	Wentworth	40	4	45	120
	....	4	0	0	Trigonometry ..	....	....	....	....	....
Guilford,........	4	1	11	11	Arithmetic......	....	38	5	35	90
	....	2	10	10	Algebra...... ..	....	38	5	35	90
	....	3	14	14	Geometry.......	....	38	5	30	90
	....	4	5	5	Arithmetic......	....	16	5	30	60
Hartford........	4	1	285	269	Algebra	....	40	5	...	....
	....	2	166	162	Geometry.......	....	40	5	....	....
	....	3	122	106	Solid Geometry Trigonomety	....	40	5	....	....
	....	4	115	15	Algebra Advanced	....	16	5	....	....
Huntington[2].....	4	1	16	16	Algebra.........	Sheldon....	38	5	35	90
	....	2	4	4	Algebra.........	Sheldon....	24	5	35	90
	....	....	....	....	Geometry.......	....	14	5	35	60
	....	3	8	8	Geometry.......	....	38	5	35	60
	....	4	7	....	Nothing.........	....	....	....	....	....
Killingly[3].......	4	1	24	24	Algebra.........	Wells......	38	5	40	120
	....	2	15	15	Geometry.......	Wells......	30	4	40	120
	....	3	16	....	....	....	....	....	....	....
	....	4	8	....	....	....	....	....	....	....
Litchfield.......	4	1	13	7	Arithmetic......	....	....	....	....	....
	....	2	15	....	Arithmetic......	....	....	....	....	....
	....	3	13	7	Algebra.........	....	36	5	35	90
	....	4	12	8	Geometry.......	....	36	5	35	90
Madison[4]........	4	1	5	5	Arithmetic......	Bradbury	36	4	15	45
	....	2	7	7	Algebra.........	Wentworth	36	5	20	45
	....	3	2	2	Algebra.........	Wentworth	36	5	20	45
	....	4	6	0	....	....	....	....	....	....
Manchester[5].....	4	1	26	26	Algebra.........	....	40	3	40	90
	....	2	26	26	Geometry.......	....	40	3	40	90
	....	3	14	3	Trigonometry ..	....	40	5	40	....
Meriden.........	4	1	114	[6]137	Algebra.........	....	40	5	40	120
	....	2	85	85	Geometry.......	....	40	5	40	120
	....	3	11	....	Trigonometry ..	....	46	5	40	120
	....	4	....	....	....	....	....	....	....	....
Middletown[7]....	4	1	72	72	Algebra.........	Wentworth	38	5	45	90
		2	62	62	Algebra.........	Wentworth	28	5	45	90
	....		....	62	Geometry.......	Wentworth	10	5	45	90
	....	3	38	34	Geometry.......	Wentworth	38	5	45	90
	....	4	41	....	Reviews.........	....	10	5	45	90
Milford[8].........	3	1	21	22	Arithmetic Review.........	....	22	4	30	30
	....	....	....	21	Algebra.........	Milne......	38	5	30	45
	....	2	24	24	Algebra.........	Milne......	38	5	30	45
	....	3	9	9	Algebra.........	Milne......	38	5	30	30

[1] The high school course has been recently established and no fourth-year class has yet appeared.

[2] Trigonometry and solid geometry for those going to higher institutions.

[3] Trigonometry and solid geometry for those whose college preparation requires it.

[4] In future geometry will probably come in third year. Bookkeeping and stenography are taught.

[5] Algebra is given three times a week and history twice.

[6] 19 repeating the subject.

[7] Algebra, four terms; geometry, three terms; mathematics, two and one-half years. In third year a pupil may elect geometry and trigonometry. The fourth year one may elect special geometry and arithmetic.

[8] Geometry is not now in the course but will be added next year.

TABLE XI — MATHEMATICS — CONTINUED

TOWNS	No. years in course	What year of course	Pupils in this school year	Pupils studying the subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation, minutes
Naugatuck[2]	4	1	37	37	Algebra	Milne	20	5	45	90
	....	....	....	....	Arithmetic	....	20	5	45	90
	....	2	15	16	Algebra	Milne	40	5	45	90
	....	3	15	12	Geometry	Wentworth	40	5	45	90
	....	4	5	0	Nothing	....	....	....	....	....
New Britain	4	1	102	102	Algebra	Wentworth	40	5	45	60
	....	....	....	49	Commercial Arithmetic Bookkeeping	Williams and R.	20	4	45	60
	....	2	73	73	Geometry	Wentworth	40	4	45	60
	....	3	53	16	Trigonometry Solid Geometry	Wentworth	20	4	45	60
	....	4	34	0	Nothing	....	....	....	....	....
New Canaan	2	1	13	13	Algebra	....	40	5	30	30
	....	2	5	5	Algebra	....	40	5	30	30
	....	....	....	....	Geometry	....	40	5	30	30
New Hartford[3]	3	1	6	6	Arithmetic	Bradbury-Eaton	36	5	30	60
	....	2	4	....	....	....	....	....	....	....
	....	3	7	11	Algebra	Wentworth	36	5	35	75
New Haven[4]	4	1	220	220	Algebra	....	40	5	40	90
	....	2	219	[5]190	Geometry	....	40	5	40	90
	....	3	171	56	Solid Geometry	....	40	....	....	....
	....	4	138	36	Trigonometry	....	....	....	....	....
North Canaan[6]	2	1	7	7	Arithmetic	Atwood	36	5	45	60
	....	....	....	7	Algebra	Robinson,	36	5	30	45
	....	2	15	15	Arithmetic	....	36	5	45	60
	....	....	....	15	Algebra	....	36	5	30	45
New Milford	2	1	13	16	Arithmetic	....	38	5	30	45
	....	....	....	....	Algebra	....	38	5	30	75
	....	2	3	3	Algebra	....	28	2	30	75
	....	....	....	....	Geometry	....	38	3	30	60
Old Saybrook	3	1	11	11	Arithmetic	....	16	5	30	45
	....	....	....	11	Algebra	....	20	5	30	45
	....	2	4	4	Algebra	....	36	5	30	45
	....	3	6	6	Geometry	....	36	5	30	30
Orange[7]	2	1	20	20	Arithmetic	....	16	4	45	60
	....	....	....	20	Algebra	Milne	22	5	45	60
	....	2	26	26	Algebra	Milne	16	5	45	60
	....	....	....	26	Geometry	Wentworth	22	5	45	45
Plainville[8]	3	1	15	15	Arithmetic	....	40	5	45	45
	....	2	16	16	Algebra	....	40	5	45	60
	....	3	6	6	Geometry	....	40	5	45	45
Plymouth[9]	3	1	7	8	Arithmetic	....	38	5	20	40
No. 1	....	2	5	8	Arithmetic	....	38	5	20	40
	....	3	15	6	Algebra	....	38	5	20	40
Plymouth	3	1	15	15	Arithmetic	Greenleaf	18	5	30	90
No. 2	....	....	....	15	Algebra	Milne	18	5	30	90
Terryville	....	2	11	11	Algebra	Milne	18	5	30	120
	....	....	....	11	Geometry	Stewart	18	5	30	120
	....	3	7	7	Geometry	Stewart	18	5	30	120
Portland	3	1	10	10	Arithmetic	Bradbury Eaton	40	5	40	60
(Gildersleeve)	....	2	3	4	Algebra	Wentworth	40	5	35	60
	....	3	6	6	Geometry	Wentworth	16	5	35	06

[1] Solid geometry and trigonometry may be added later.

[2] Plane geometry (5 books) is taken when pupils remain to graduate.

[3] Forty-two studying arithmetic in commercial department.

[4] All except commercial class.

[5] In arithmetic the two classes recite as one; in algebra by grades.

[6] The course is about to be extended by the addition of another year. Original work is required.

[7] Bookkeeping is taken in third term of first year. Those taking "English Course" have one term more of algebra.

[8] In the first year, compound numbers to discount; in the second year, arithmetic is finished.

TABLE XI — MATHEMATICS — CONTINUED

TOWNS.	No. years in course	What year of course	Pupils in this school year	Pupils studying the subject.	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation, minutes
Portland[1]	4	1	12	12	Algebra	Wentworth	40	3	40	90
(District No. 2)	....	2	8	8	Algebra	Wentworth	20	4	40	90
	....	....	....	8	Geometry	Wentworth	20	4	40	90
	....	3	7	8	Geometry	Wentworth	40	3	40	90
	....	4	5	2	Review	....	40	4	40	90
Putnam	4	1	30	....	Algebra	....	40	5	40	90
	....	2	13	12	Geometry	....	40	5	40	90
	....	3	18	....	....	....	....	....	....	....
	....	4	14	....	....	....	....	....	....	....
Salisbury[2]	3	1	21	20	Arithmetic	....	28	4	30	30
(Lakeville)	....	2	2	5	Algebra	Greenleaf	40	3	30	30
	....	3	8	8	Geometry	....	40	3	30	35
Saybrook	3	1	23	23	Algebra	Greenleaf	38	....	30	90
(Deep River)	....	2	8	8	Geometry	Wentworth	24	....	45	60
	....	3	9	9	Arithmetic	....	10	....	30	....
Seymour[3]	4	1	13	13	Arithmetic	....	16	5	35	60
	....	....	....	13	Algebra	Boyden	24	5	30	60
	....	2	6	6	Algebra	Wentworth	40	5	30	60
	....	3	9	....	Nothing	....	....	....	....	....
	....	4	7	7	Geometry	....	40	5	35	....
Southington[4]	4	1	48	48	Algebra	Milne	36	5	40	90
	....	2	34	34	Algebra	....	24	4	40	90
	....	....	....	34	Geometry	Wentworth	12	4	40	90
	....	3	33	33	Geometry	....	36	4	40	90
	....	4	19	....	....	....	....	....	....	....
So. Windsor	3	1	6	7	Algebra	Wentworth	26	5	25	90
	....	2	....	....	....	....	....	....	....	....
	....	3	....	....	....	....	....	....	....	....
Stafford[5]	4	1	22	22	Algebra	Wells	36	5	35	75
	....	2	31	30	Geometry	Wells	36	5	35	90
	....	3	13	....	Bookkeeping	....	36	3	35	75
	....	4	13	13	Review	....	....	2	35	90
Stamford[6]	4	1	72	72	Algebra	Wentworth	40	5	40	90
	....	2	42	39	Geometry	....	40	5	40	90
Stonington	3	1	18	18	Arithmetic	....	36	5	30	40
(Borough)	....	2	7	7	Algebra	Robinson	36	5	30	45
	....	3	7	7	Algebra	Robinson	....	5	30	45
	....	....	....	7	Geometry	....	....	5	30	45
Stratford[7]	2	1	25	25	Algebra	Wentworth	40	5	25	40
	....	....	....	9	Geometry	No Text	40	5	25	40
	....	2	9	9	Algebra	Wentworth	40	5	25	40
	....	....	....	9	Geometry	No Text	40	5	25	40
Thomaston	3	1	11	16	Algebra	Wentworth	36	5	35	90
	....	2	15	13	Geometry	Wentworth	36	5	35	90
	....	3	6	2	Trigonometry	....	22	5	35	105
Torrington	4	1	50	50	Algebra	....	40	5	40	90
	....	2	23	23	Algebra	....	16	5	40	90
	....	....	....	....	Geometry	....	24	5	40	90
	....	3	16	16	Geometry	....	16	5	40	90
	....	4	15	5	Trigonometry	....	12	5	40	90

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[1] Bookkeeping (Gay), is taught during first year. Trigonometry (Newcomb), is optional in the fourth year.

[2] Much of the work done is independent of texts; in arithmetic a problem book is largely used; in geometry type-forms are manufactured by pupils, and mechanical drawing and pattern-making are correlated.

[3] Bookkeeping in the second year. Trigonometry is given to those going to Sheffield.

[4] Geometry is taught in highest grammar grade; no text is used in the grammar grade. There is also bookkeeping in third and fourth year.

[5] One Senior is taking solid geometry.

[6] Solid geometry may be taken in third year.

[7] The principal, a sometime pupil of, and secretary to, Col. Parker, endeavors to carry out in his work the principles into which he has been indoctrinated. The geometry, for instance, is taught without a book, and is inventional, original, constructive.

TABLE XI — MATHEMATICS — CONCLUDED

TOWNS.	No. years in course	What year of course	Pupils in this school year	Pupils studying the subject	Subject	Text	For how many weeks	How many recitations per week	How many minutes in each recitation	Probable time spent in preparation, minutes
Vernon[1]	4	1	49	49	Algebra	Wells' Acad.	40	5	40	90
	....	2	29	29	Geometry	Wells' Plane	.....	5	40	120
	....	3	21	0	....	....	.....	5	40	....
	....	4	20	....	Arithmetic	....	16	5	40	....
Wallingford[2]	4	1	21	....	Algebra	....	40	5	40	....
	....	2	17	....	Geometry	....	40	5	40	....
	....	3	8	....	Algebra	....	40	5	40	....
	....	4	10	....	Solid Geometry, Trigonometry	....	40	5	40	....
Waterbury[3]	4	1	163	163	Algebra	....	40	5	45	90
	....	2	63	50	Algebra	....	13	5	45	90
	....	....	60	....	Geometry	....	27	5	45	90
	....	3	40	30	Geometry	....	13	5	45	90
	....	4	10	....	....	....	....	....	....	....
West Hartford	4	1	17	17	Arithmetic	....	15	....	40	60
	....	....	....	....	Algebra	....	22	....	40	60
	....	2	....	11	Algebra	....	16	....	40	60
	....	2	....	....	Geometry	....	22	....	....	....
	....	3	....	4	Geometry	....	15	....	....	....
Wethersfield[4]	2	1	16	16	Algebra	....	40	5	30	45
	....	2	8	4	Geometry	....	40	5	30	30
Windham	4	1	49	48	Algebra	....	40	5	40	60
	....	2	....	....	Algebra	....	16	....	....	....
	....	....	...	36	Geometry	....	24	....	....	....
	....	3	24	...	Geometry	....	16	...	....	....
	....	....	....	16	Trigonometry	....	12	....	....	....
	....	4	16	....	....	....	....	....	....	....
Windsor	4	1	20	20	Algebra	....	37	....	....	...
	....	2	17	17	Algebra	....	25	....	....	....
	....	3	7	7	Geometry	....	12	....	....	....
	....	3	....	....	Geometry	....	37	...	....	....
	....	4	4	....	....	....	....	....	....	....
Windsor Locks	2	1	7	7	Arithmetic	....	39	5	30	30
		....	7	5	Algebra	....	39	5	30	30

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[1] Geometry is largely taught without the use of text.

[2] Both algebra and geometry are taught in ninth grade. There are four courses, which fact makes exact tabulation difficult. If, however, we add commercial arithmetic and business forms to the subjects tabulated, we shall get a fair impression of the work doing.

[3] If a pupil be preparing for a scientific school he takes trigonometry. The English course, now of two years, is to be lengthened to three with corresponding increase in mathematics.

[4] The geometry is inventional.

COURSES OF STUDY

TABLE XII.

This table gives the courses of study of eight schools, arranged under subjects.

The schools are :

HARTFORD
KILLINGLY
MERIDEN
ROCKVILLE
STAMFORD
THOMPSONVILLE
WILLIMANTIC
NEW HAVEN

The mark × indicates that the subject is the same as in the preceding column or course.

The figure before a subject indicates the number of terms it occupies in the course.

TABLE XII.—

HARTFORD

YEAR	I					II				
COURSE	College Preparatory Classical	General Classical	Preparatory Scientific	English	Business	Classical	General Classical	Scientific	English	Business
Latin	Lessons	×	×			Cæsar Latin Composition	×	×		
Greek						Lessons				
English	English	×	×	×			English	×	×	×
Mathematics	Algebra	×	×	×	× Bookkeeping	1 Algebra 2 Geometry	×	×	×	×
Science							1 Physics or Zoology or Physiology	×	×	Physics
History	Grecian Roman	×	×	×	×		2 English	×	×	×
Modern Languages	Modern Languages			French or German	×	French or German (for girls)			French or German	×
Literature										
Drawing	Elective	×	×	×	×	×	×	×	×	× Stenography Typewriting
Music	Music Elective	×	×	×	×	×	×	×	×	×

KILLINGLY

YEAR	I				II			
COURSE	Classical	Latin	4 years General	3 years General	Classical	Latin	4 years General	3 years General
Latin	Lessons	×			Cæsar and Latin Prose	×		
Greek					Lessons			
English	Rhetoric	×	×	×				
Mathematics	Algebra	×	×	×	Algebra Geometry	×	×	× Bookkeeping
History	English	×	×	General	Ancient	General	×	×
Literature								English
Modern Languages								
Government								
Science	Physiology Physical Geography	×	×	×	Physics*	× Astronomy	×	×

*Optional

COURSES OF STUDY.

HARTFORD

III				IV				YEAR
Classical	General Classical All studies optional	Scientific	English	Classical College reviews for boys	Classical	Scientific	English	COURSE
Cicero and Latin Composition Ovid	×	×		Virgil (for girls)	×	×		**Latin**
Attic Prose and Composition				Attic Prose Iliad Homer				**Greek**
English Rhetoric (for girls of literary course)	English Grammar Rhetoric	English	English Grammar Study of forms	2 English				**English**
Geometry Advanced Algebra	×	×	×	College reviews (for boys)		Algebra Trigonometry		**Mathematics**
	Physical Geography Physics or Zoology or Chemistry Physiology Botany Geology	×	×		Botany Chemistry Astronomy Geology Physical Geography	Geology ×	×	**Science**
	Mediæval		Mediæval		Modern	×	×	**History**
French or German (for girls) French (college boys)	×	×	×	French or German	×	×	×	**Modern Languages**
				English Literature (for girls)	× Outline Readings		English Literature Outline Readings	**Literature**
×	×	×	×	×	×	×		**Drawing**
×	×	×	×	×	×	×	×	**Music**

KILLINGLY

III				IV			YEAR
Classical	Latin	4 years General	3 years General	Classical	Latin	General	COURSE
Cicero and Latin Prose	×			Virgil and Latin Prose			**Latin**
Anabasis and Greek Prose				Homer and Greek Prose			**Greek**
							English
		Bookkeeping					**Mathematics**
Ancient	General	×					**History**
English	×	×					**Literature**
French or German*	×	×	×	French or German*	×	×	**Modern Languages**
			Civil Government		Civil Government	×	**Government**
	2 Chemistry 1 Geology	×	× Botany		Botany	×	**Science**

* Optional

TABLE XII—COURSE

MERIDEN

YEAR	I		II	
COURSE	Classical	English	Classical	English
Latin and Greek	3 Latin Lessons		3 Cæsar Latin Composition 3 Greek Lessons	
English				
Mathematics	3 Algebra	><	Geometry	><
Science	2½ Physical Geography 1½ Physiology	Physiography >< ><		3 Physics (for boys) or Zoology (for girls)
History		1½ English History		
Modern Languages				3 German
Government				1 Civil Government (for girls)
Literature				

ROCKVILLE

YEAR	I				II			
COURSE	Classical	Latin Scientific	English Scientific	Business	Classical	Latin Scientific	English Scientific	Business
Latin and Greek	Latin Lessons	><	><		Cæsar Cicero Greek	><	><	
English	2 English	><	><	3 English	English Lessons Anabasis	><	><	><
Mathematics	Algebra	><	><	><	Geometry	><	><	>< Commercial Arithmetic
History	General History	><	><	><				
Science	Physiology	><	Zoology or Botany	>< ><		Physical Geography Physics	>< ><	>< ><
Literature								
Modern Languages							French or German	
Government								

F STUDY — CONTINUED

III		IV		YEAR	
Classical	English	Classical	English	COURSE	MERIDEN
3 Virgil Latin and Greek Composition Anabasis		3 Cicero Latin and Greek Composition 3 Iliad		Latin and Greek	
			1 Rhetoric	English	
	1 Advanced Algebra 1 Trigonometry 1 Solid Geometry			Mathematics	
	1 Botany or 3 Chemistry (Elective) 1 Astronomy 1 Geology ><			Science	
			3 General History ><	History	
3 French or German		3 French or German		Modern Languages	
				Government	
		1 English Literature	3 ><	Literature	

III			IV			YEAR	
Classical	Latin Scientific	English Scientific	Classical	Latin Scientific	English Scientific	COURSE	ROCKVILLE
Cicero Ovid Anabasis	><		Virgil and Reviews Homer and Greek Reviews	><		Latin and Greek	
						English	
			Solid Geometry	Higher Algebra	><	Mathematics	
Greek and Roman	English	>< French or German				History	
	Chemistry	>< Geology ><				Science	
>< American Literature French or German English Literature	French or German			American Literature	><	Literature	
	Civil Government	><		Current Events	><	Government	

TABLE XII — COURSE

	YEAR	I				II			
	COURSE	Classical	Literary	Scientific	Commercial	Classical	Literary	Scientific	Commercial
STAMFORD	**Latin and Greek**	Forms Composition Sight Work				Cæsar Prose Composition Greek Grammar and Lessons			
	English		Grammar and Composition	><	Words Composition and American Literature	Critical Study and Composition	><	><	><
	Mathematics	3 Algebra	><	><	Commercial Arithmetic Bookkeeping	Geometry	><	><	Arithmetic Bookkeeping
	Science						1½ Chemistry Zoology	><	
	Literature	1 American					Adapted to		
	History	1½ English	><	><	><		History General		
	Government	Civics	><	><	><				
	Modern Languages							German	><

OF STUDY — CONTINUED

III				IV				YEAR
Classical	Literary	Scientific	Commercial	Classical	Literary	Scientific	Commercial	COURSE
Æneid Sight Reading and Composition Anabasis Sight Reading and Composition				3 Cicero Ovid and helps 3 Iliad				**Latin and Greek**
	Rhetoric	><	><	1 College Requirements	Rhetoric	><		**English**
Solid Geometry or College Requirements								**Mathematics**
	Physics Botany	><			Geology Astronomy	><		**Science**
	English				19th Century			**Literature**
	English Adapted to Literature			3 Roman	19th Century	Commerce		**History**
	Economics	><	>< Commercial Law and Geography			Banking and Finance		**Government**
		German	><			German	><	**Modern Languages**
						Stenography Typewriting		

STAMFORD

TABLE XII — COURSE

THOMPSONVILLE

YEAR	I			II		
COURSE	Classical	English Latin	English	Classical	English Latin	English
Latin and Greek	3 Latin Grammar and Reader	><		3 Latin Cæsar Prose Composition 3 Greek Grammar and Reader	><	
English	1 English Composition	><	><			
	1 Rhetoric	><	><			
	1 English Language and Literature	><	><	3 English Literature	><	><
Literature						
Mathematics	Algebra	><	><	Geometry	><	><
Science			1 Physical Geography 2 Botany		2 Physiology	1 Zoology ><
Modern Languages						
History						
General	Writing or Drawing	><	><	><	><	><
	Rhetorical or General Exercises	><	><	><		
	Music or Elocution	><	><	><	><	><

* Optional

WILLIMANTIC

YEAR	I		II	
COURSE	College Preparatory	General	College Preparatory	General
Latin and Greek	3 Latin Lessons	*><	2 Cæsar 1 Virgil 1 Greek Lessons 2 Anabasis	*><
English	English	><		3 English
Mathematics	Algebra	><	3 Geometry	
Science		1½ Elementary Chemistry * 1½ Elementary Physics *		Zoology * 1 Physiology * 1 Botany *
Modern Languages				
Government				

* Optional

OF STUDY – CONTINUED

THOMPSONVILLE

III			IV			YEAR
Classical	English Latin	English	Classical	English Latin	English	COURSE
3 Cicero and Latin Prose 3 Anabasis and Greek Prose	><		3 Virgil and Sight Reading 3 Iliad and Sight Reading	><		**Latin and Greek**
3 Critical Readings	><					**English**
						Literature
1 Geometry and Trigonometry	><	Bookkeeping ><	1 Ethics	1 Political Economy	><	**Mathematics**
2 Physics *	><	1 Astronomy ><	1 Physiology	1 Psychology 1 Geology	>< >< 3 Chemistry	**Science**
3 French or German	><	*><	2 French or German	><	><	**Modern Languages**
	2 Ancient and Modern History	><	Greek and Roman History			**History**
><	><	><	><	><	><	**General**
><	><	><	><	><	><	
><	><	><	><	><	><	

* Optional

WILLIMANTIC

III		IV		YEAR
College Preparatory	General	College Preparatory	General	COURSE
3 Virgil and 1 Roman History 3 Anabasis	*>< 2 Iliad	2 Cicero 1 Ovid	><	**Latin and Greek**
	3 English Literature and General History		English Literature and General History	**English**
1 Algebra Revised		1 Revised Geometry		**Mathematics**
	2 Mechanics and Laboratory Physics 1 Laboratory Chemistry *><		1 Geology 1 Astronomy	**Science**
French			3 French *	**Modern Languages**
			1 Civil Government	**Government**

* Optional

TABLE XII — COURSE

I

NEW HAVEN.

	CLASSICAL COURSE.	SCIENTIFIC COURSE.	ENGLISH COURSE.	COMMERCIAL COURSE.
Latin	Harkness' Easy Latin Method — entire. Collar's Gate to Cæsar — entire.	Same as Classical Course.	Same as Classical Course.	
Greek				
English	Lockwood's Lessons, chapters I, VIII, and IX entire; and parts of IV, V, VI, and VII. Composition Exercise — once a week.			Same as Classical Course.
Mathematics	*Algebra:* Wells' Higher Algebra through Quadratics.			*Algebra:* Same as Classical Course
Science				
History	Myer's Greek History, Allen's Roman History.			
Modern Languages				*German:* Whitney's Brief German Grammar. Grimm's Marchen, Brandt's Reader — one-half, Sight Reading, Prose Composition founded on reading.
Literature	*Books read:* Evangeline, Short Poems from Longfellow, Snow Bound, Julius Cæsar, Lars, Tales of the White Hills, Selections from Irving, Merchant of Venice, Talisman, Ivanhoe, Lady of the Lake, Birds and Bees. *Supplementary reading:* Wonder Books I and II, Kingsley's Greek Heroes, Knickerbocker History, Bracebridge Hall, many of the Alhambra legends.			
				Bookkeeping, including *Commercial Arithmetic* and transactions in *Commercial Paper*: 3 recitations a week. *Penmanship:* 2 recitations a week.

Free-hand drawing, including perspective, light and shade composition, and design (mediums; pencil, pen including elements of machine and building construction, optional in all courses. Music — once a week, in the

F STUDY — CONTINUED

II

CLASSICAL COURSE.	SCIENTIFIC COURSE.	ENGLISH COURSE.	COMMERCIAL COURSE.	
æsar's Gallic War — three books. Cicero's Orations, two. Collar's Composition — fifteen exercises.	Cæsar's Gallic War — three books.	Same as Scientific Course.		**Latin**
Vhite's First Lessons, eighty-two chapters, Xenophon's Anabasis, eight chapters.				**Greek**
ockwood's Lessons. Figures, Diction, and Style.	Same as Classical Course.	Same as Classical Course.	Same as Classical Course.	**English**
lgebra—Wells' Higher, completed from chapter on Quadratics. Geometry — Wells' Plane, with original construction and demonstration.	Same as Classical Course.	Same as Classical Course.		**Mathematics**
	Botany: Gray's Field Botany, Laboratory work. *Zoology:* Packard's Briefer Course, Laboratory work.	*Botany:* Same as Scientific Course. *Zoology:* Same as Scientific Course.	*Chemistry:* Entire year—five exercises a week.	**Science**
				History
erman: Whitney's Brief German Grammar, Grimm's Märchen, Brandt's German Reader — one-half, memorizing of Anecdotes, Prose Composition founded on reading.			*German:* Whitney's Brief German Grammar, Brandt's German Reader — second half, Undine, Sight Reading, Translation of Business Letters, Prose Composition based on the reading.	**Modern Languages**
ooks read: Silas Marner, Sir Launfal, Bunker Hill Orations, Tales of Wayside Inn, Parts I, II, III, Marmion, Tempest, Woodstock, As You Like It.— Supplementary reading.				**Literature**
			Bookkeeping and Actual Business: 10 periods a week, Metric System. *Stenography and Typewriting:* 1 recitation a week.	

and ink, charcoal, and water color), required in English Course and optional in others. Mechanical drawing, Senior Class.

TABLE XII – COURS

NEW HAVEN.

III

	CLASSICAL COURSE.	SCIENTIFIC COURSE.	ENGLISH COURSE.	COMMERCIAL COURSE.
Latin	Five Books of the Æneid, and Eclogues, Prose Composition — Collar's thirty exercises.	Virgil's Æneid — three books, and review Prose Composition — 40 exercises.	*Latin or German or French:* Latin: Six books of Virgil's Æneid. German: Same as Classical Course. French: Same as Classical Course.	
Greek	Three and one-half Books of the Anabasis — Prose Composition — Daniell's twenty exercises.	Wells' Solid Geometry, Plane reviewed.		
English			Same as Scientific.	
Mathematics	*Geometry:* Review of Wells' Plane. *Algebra:* Review of Wells' Higher.	*Algebra* — reviewed.	Solid Geometry and Plane Trigonometry — one-half year.	
Science			*Physics:* Carhart's and Chute's, and Chute's Practical Physics—two double and one single period weekly. Ground covered: Mechanics, Heat, Magnetism, Electricity, Sound and Light.	*Physics:* Same a English Course
History			General History — Meyer's Mediæval, Supplementary reading in Montgomery's English History, Montgomery's French History, Lord's Modern History.	
Modern Languages	Whitney's Brief German Grammar, Brandt's German Reader — second half, Sturm's Immensee, L'Arrabiata, Minna von Barnhelm, Der Fluch der Schönheit Bilderbuch ohne Bilder, Sight Reading, Composition from Collar's Eysenbach. *French:* Same as Scientific. *German:* (beginning) Same as Scientific.	*German or French:* beginning German: Whitney's Brief German Grammar, Grimm's Märchen, Brandt's German Reader—one-half, Prose Composition, Höher als die Kirche, L'Arrabiata or Immensee. *French:* Whitney's Brief French Grammar, Super's French Reader — 100 pages, La Petite Fadette or Le Conscrit, Le Voyage de M. Perrichon, L'Abbé Constantin, Composition based on La Dunieù Classe		*German:* Collar Eysenbac Grammar — 10 pages, Thre Comedies: Er is nicht Eifersüchtig, Der Weiberfeind, Im Wartesalon erste Klasse, De Zwerg Nase Bilderbuch ohn Bilder, Minn von Barnhelm First 20 exercises from English into Germa from "Alternat Exercises fo Joynes-Meissne Grammar,' About 20 anecdotes learned.
Literature		Ancient Mariner, Adam Bede, As You Like It, Defoe's History of the Plague, Twice Told Tales, Merchant of Venice, Idylls of the King, Lord Clive and other Historical Essays of Macaulay, Vicar of Wakefield, Lady of the Lake, Ivanhoe, Review English Grammar.		*English:* Same a Scientific Course
				Stenography: Fiv exercises a week *Typewriting:* Fiv exercises a week Advanced Commercial Wor with Actua Business.

F STUDY — CONTINUED

IV

CLASSICAL COURSE.	SCIENTIFIC COURSE.	ENGLISH COURSE.	
icero — eight orations. Prose Composition — third part Collar's.	Three books of Æneid.		Latin
iad—three books, Jones' Prose Composition—entire—with exercises in connected discourse.			Greek
ame as English Course.			English
eview of Plane Geometry and Algebra.	Wells' Solid Geometry, Bowser's Plane Trigonometry, Algebra reviewed, Field Work.		Mathematics
	Botany: Sheffield requirement.	*Astronomy:* Young's Lessons and Lockyer's Elements. *Physical Geography:* Maury's. *Geology:* Dana's Geological Story. *Physiology:* Twenty-five lectures. *Chemistry:* One year, 4 recitations a week.	Science
		Meyers' Modern History, Fiske's Civil Government.	History
rench or German: French, Mademoiselle de la Seiglière, Prise de la Bastille, La Belle Nivernaise, Le Curè de Tours, French Lyrics, Polyeucte, Le Bourgeois Gentilhomme, Prose Composition. *German,* L'Arrabiata, Selections from German History, Immensee, Soll und Haben, Er ist nicht Eifersuchtig, Der Weibefeind, Bilderbuch ohne Bilder, Die Journalisten, Prose Composition. *erman or Greek: German,* Fluch der Schönfeit, Minna von Barnhelm, Harzreise, Lied von der Glocke, Wilhelm Tell, Dichtung und Wahrheit, Aus dem Staat Friedrich des Grosses, Composition, Anecdotes and poems.	*French or German: French,* Whitney's Brief French Grammar, L'Abbé Constantin, La Prise de la Bastille, Mdlle. de la Seiglière, Le Voyage de M. Perrichon, Grandgent's Composition — twenty six exercises, Anecdotes and Poems. *German,* Same as English Course.	*German or French:* Brandt's German Reader — 2d half, Immensee, L'Arrabiata, Bilderbuch ohne Bilder, Wilhelm Tell, Höher als die Kirche, Die Journalisten, Minna von Barnhelm, Sight Reading and Composition on works read. *French:* Same as Scientific Course.	Modern Languages
	English: Childe Harold, House of Seven Gables, Princess, Essay on Byron, English Humorists, Macbeth, Midsummer Night's Dream.	*English:* As You Like It, History of the Plague, Tales of a Traveler, Woodstock, Evangeline, Silas Marner, Bunker Hill Orations, Princess, Merchant of Venice, L'Allegro, Il Penseroso, Comus, Lycidas, Essay on Milton, Essay on Addison, Roger de Coverley Papers, American Scholar.	Literature

College Entrance Requirements

TABLE XIII.

The following table shows the entrance requirements of seven colleges and universities. They are —

- Amherst
- Harvard
- Mount Holyoke
- Wellesley
- Wesleyan
- Williams
- Yale
  - Scientific School

A comparison of XII and XIII will show what the colleges require and how the high schools are constructed to meet these requirements.

TABLE XIII.—COLLEGE ENTRANCE REQUIREMENTS

	LATIN: A.B. COURSE	LATIN: PH.B. AND B.S. COURSE	GREEK: A.B. COURSE	GREEK: PH.B. AND B.S. COURSE
AMHERST	Cæsar: Gallic War, I-IV [illegible] Cicero: [illegible] Virgil: [illegible] Sight Translation: [illegible] Prose Composition: [illegible]	Ph.B. Course: Gallic War [illegible] B.S. Course: Maximum Requirement: Same as for the Classical Course Minimum Requirement: [illegible]	Grammar [illegible] Xenophon: [illegible] Homer: [illegible]	None.
HARVARD UNIVERSITY	Candidates may [illegible] Latin [illegible] Greek Minimum Requirement: [illegible] ordinary constructions Maximum Requirement: [illegible]	No requirement	Candidates must [illegible] Minimum Requirement: [illegible] Maximum Requirement: [illegible]	None
MOUNT HOLYOKE COLLEGE	Grammar: Including prosody Prose Composition: Jones' Exercises [illegible] equivalent Cæsar: [illegible] Gallic War Cicero: [illegible] Virgil: Six books of Æneid	Same as in A B	Grammar: Required Prose Composition: [illegible] Xenophon: Four books Anabasis Homer: Three books of Iliad	Not required, but may be offered in place of modern language
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY	[illegible] Virgil [illegible]		None	
WELLESLEY COLLEGE	A.B. Course Grammar: [illegible] Cæsar: [illegible] Gallic War Cicero: [illegible] Virgil: [illegible] Prose Composition: [illegible]		A.B. Course. [illegible] Maximum Requirement Grammar: Hadley-Allen or Goodwin, with one book of [illegible] Prose Composition: Collar and Daniell's, Jones's, White [illegible], or Woodruff's [illegible] Sight Translation: Of Attic and Homeric Greek Xenophon: [illegible] Anabasis Homer: Three [illegible] Minimum Requirement: [illegible] Goodwin's or Hadley [illegible] Anabasis [illegible]	
WESLEYAN UNIVERSITY	Grammar: [illegible] Cæsar: Gallic War, Books I-IV Cicero: [illegible] Virgil: [illegible] I-VI Sight Translation: Of both prose and poetry Prose Composition: [illegible] narrative Equivalents accepted	Ph.B. Course: Same as in A B B.S. Course: No requirement	Grammar: Hadley-Allen or Goodwin Prose composition Xenophon: Four of Anabasis Homer: Three of Iliad Sight translation from Xenophon	None
WILLIAMS COLLEGE	Grammar: Allen and Greenough, Gildersleeve's, Harkness Cæsar: Four books Cicero: Seven orations Virgil: [illegible] with prosody Sight Translation: Of easy prose Equivalents [illegible] accepted in part. Roman pronunciation		Prose Composition: [illegible] Grammar: Hadley-Allen or Goodwin's [illegible] Xenophon: [illegible] Anabasis Homer: [illegible] Iliad Sight translation of easy prose	
YALE UNIVERSITY	Grammar: Required Cicero: Orations [illegible] "Cato Major" or "Marcellus," and the 14th Philippic Virgil: First six books of Æneid [illegible] with prosody Ovid: Metamorphoses [illegible] translation Sight Translation: Of passages from Nepos and Cæsar Prose Composition: Of connected English Cæsar:	Ph.B. Course: Elements of grammar [illegible] [illegible] [illegible] of Gallic War [illegible] equivalent accepted	Grammar: Required Xenophon: Four [illegible] Anabasis Homer: Three [illegible] Iliad with prosody Sight Translation: Of Xenophon Prose Composition: Of connected English based on [illegible] Anabasis	

	MATHEMATICS: A.B. COURSE	MATHEMATICS: PH.B. AND B.S. COURSE	FRENCH: A.B. COURSE	FRENCH: PH.B. AND B.S. COURSE	GERMAN: A.B. COURSE	GERMAN: PH.B. AND B.S. COURSE
AMHERST	Arithmetic: [illegible] metric system Algebra: [illegible] Geometry: [illegible]	Same as A B	None.	Ph.B. Course. [illegible] of these languages, Latin, French, German The work of first [illegible] terms [illegible]. This includes a general knowledge of grammar [illegible] French [illegible] and to translate easy French at sight [illegible] pages of narrative or descriptive prose must have been read critically	None	[illegible] The work of first three terms [illegible] [illegible]
HARVARD UNIVERSITY	Algebra: [illegible] Geometry: [illegible] Analytic geometry Advanced algebra	B.S. Course: Algebra as in A B Plane geometry Solid Books VI, VII, VIII, XI of Chauvenet [illegible] Analytic geometry [illegible]	For the degree, four units of requirements are offered [illegible] elementary French and [illegible] elementary German and [illegible] advanced French or advanced German Elementary French: [illegible] Advanced French: Translation at sight of standard prose; Grammar; Composition based on Daudet [illegible]; One play from each of Corneille, Racine, Molière	B.S. Course: Either German or French required Same as Elementary French of A B	For the degree, four units [illegible] Elementary German: [illegible] Advanced German: Translation at sight of modern German prose; Grammar; [illegible] Freytag's [illegible]; Heine's Die Harzreise; Goethe's Dichtung und Wahrheit [illegible]; Lessing's Minna von Barnhelm; Schiller's Wilhelm Tell [illegible]	B.S. Course: Either German or French required Same as Elementary German of A B
MOUNT HOLYOKE COLLEGE	Algebra: [illegible] Geometry: [illegible]	Same as A B	None	B.S. Course: French or German Méthode [illegible] Six Fables of La Fontaine [illegible] Two of [illegible] Plays [illegible] Modern Prose Writers Esther, Racine Le Cid, Corneille	None	B.S. Course: French or German [illegible] Brandt's Reader [illegible] Equivalent accepted Examination [illegible] German
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY	Algebra: Through Quadratics [illegible] Trigonometry [illegible]		Storm [illegible] Andersen's Bilderbuch [illegible] La Fontaine [illegible]		Same as French	
WELLESLEY COLLEGE	A.B. Course Algebra: Proportion, inequalities, powers and roots, quadratics [illegible] Geometry: [illegible]		A.B. Course. One [illegible] three [illegible] Greek and German or Greek and French [illegible] Maximum requirement [illegible] Minimum requirement A [illegible] Minimum requirement B [illegible] required in minimum A		A.B. Course. One [illegible] three [illegible] Greek and German or Greek and French [illegible] Maximum Requirement [illegible] Minimum Requirement [illegible]	
WESLEYAN UNIVERSITY	Algebra: [illegible] Wentworth's Elements [illegible] Geometry: Plane [illegible] five books of Chauvenet	B.S. Course: Same as A B with addition [illegible] Plane and spherical trigonometry, with use of logarithms and trigonometric tables Analytical geometry [illegible]	None	Ph.B. Course: Either French or German I. Whitney's Practical Grammar Part I [illegible] B.S. Course: There are three groups of requirements [illegible] II. Whitney's Grammar Part II [illegible] Jeune Homme Pauvre Ohnet, Le Maître de Forges	None	Ph.B. Course: Either French or German I. Thomas' Practical Grammar [illegible] B.S. Course: [illegible] II. Schiller's Wilhelm Tell [illegible]
WILLIAMS COLLEGE	Arithmetic: Including metric system Algebra: [illegible] Geometry: [illegible] Trigonometry: [illegible] Algebra: [illegible]		In place of Greek there will be accepted two years' course in either French or German [illegible] 1st year: [illegible] 2d year: [illegible]		In place of Greek there will be accepted two years' course in either French or German [illegible] 1st year: [illegible] 2d year: [illegible]	
YALE UNIVERSITY	Algebra: Through quadratics, proportion [illegible] Geometry: [illegible] Trigonometry: [illegible] and spherical; Use of logarithms	Ph.B. Course: As in A B with addition [illegible] [illegible] Equivalent [illegible]	Either French or German Ability to translate easy prose at sight Facility in prose composition	Ph.B. Course: Either French or German Same as in A B	Either French or German Ability to translate easy prose at sight Facility in prose composition	Ph.B. Course: Either French or German Same as in A B

	SCIENCE: A.B. COURSE	SCIENCE: PH.B. AND B.S. COURSE	HISTORY: A.B. COURSE	HISTORY: PH.B. AND B.S. COURSE	ENGLISH.
AMHERST	None.	Either Physics or Chemistry Physics: Gage's Introduction [illegible] Chemistry: General Laws and Theories [illegible] [illegible]	Greek: To death of Alexander Roman: To death of Marcus Aurelius Ancient Geography	Same as A B [illegible] Modern Geography	Reading and Practice.—A certain [illegible] Preliminary Examination in 1896, for the Class entering in 1897 [illegible] Study and Practice [illegible] Final Examination in 1897 [illegible] Merchant of Venice [illegible]
HARVARD UNIVERSITY	This is preferred: Either [illegible] Physics [illegible] or [illegible] Forty experiments [illegible] Harvard Catalogue [illegible] Optional subjects [illegible] Sixty experiments [illegible] Laboratory note book required	Same as in A B	Including Historical Geography: Either History of Greece and Rome or [illegible] [illegible]	Same as A.B.	Same as above.
MOUNT HOLYOKE COLLEGE	None.	B.S. Course Botany: Spalding's Introduction or an equivalent Plant Determination Physics: Avery's Elements of Natural Philosophy or equivalent	U.S. Greek: [illegible] To Death of Alexander Roman: [illegible] To Death of Marcus Aurelius Or equivalent	Same as A B	Same as above
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY		Botany: Knowledge of structure and principles of classification [illegible] Gray's [illegible] recommended	English, Montgomery [illegible]		Same as above.
WELLESLEY COLLEGE	A.B. Course. Any one of the following may be substituted for minimum requirement in Greek or French or German Physics: The Harvard [illegible] as outlined in the Report [illegible] Chemistry: [illegible] Report [illegible] Secondary School Studies [illegible] Zoology: [illegible] compound microscope Physical Geography		A.B. Course U.S.: A brief [illegible] Greek: To Peloponnesian War Roman: [illegible] English: [illegible]		Same as above.
WESLEYAN UNIVERSITY	None.	B.S. Course. Any one of following [illegible] 1. Botany and Physical Geography [illegible] 2. Chemistry [illegible] 3. Physics: (a) Carhart and Chute's Elements [illegible]	Greek: [illegible] Roman: [illegible] Allen's [illegible] Geography: Ancient Geography; Tozer's Primer	Ph.B. Course: Same as A B B.S. Course: None	Same as above
WILLIAMS COLLEGE			Greek: To [illegible] Alexander; Smith's [illegible] Roman: To [illegible] Augustus [illegible] Candidates [illegible]		Same as above.
YALE UNIVERSITY	None	Ph.B. Course Botany Gray's Elements Experience in analysis of plants	Roman: To Death of Augustus Greek: [illegible]	U.S. [illegible] History	Same as above

TABLE XIII.—COLLEGE ENTRAN

LATIN

		A.B. COURSE.	PH.B. AND B.S. COURSE.
AMHERST	**Cæsar**	Gallic War, I-IV, or an equivalent in Cæsar's Civil War, or in Cornelius Nepos, or in Sallust.	[Ph.B. Course.] Gallic War, Books I-IV. [B.S. Course.] Minimum Requirement, not to be followed by study of Latin in college.
	Cicero	Orations against Catiline. Oration for Archias, with questions on subject matter and grammar, including rules for pronunciation.	[Ph.B. Course.] Three Orations. or
	Virgil	Books I-VI of Æneid or Book I of Æneid and Eclogues question on subject matter and prosody.	[Ph.B. Course.] Æneid Books, I and II.
	Sight Translation	From Cæsar, Cicero's Orations; Æneid, Ovid's Metamorphoses, with general questions on grammar, history, prosody, and antiquities.	[B.S. Course.] **Maximum Requirement.** Same as for the Classical Course.
	Prose Composition	A passage of connected English narration based on some portion of prescribed prose.	
		Roman pronunciation as prescribed Cambridge (England) Philological	in scheme. Prepared by the Society, 1887.
HARVARD UNIVERSITY		Candidates may be admitted without Latin, or with minimum requirement of Latin, or with maximum, but must have either Latin or Greek. Minimum Requirement. Translation of simple prose at sight, with questions on usual forms and ordinary constructions. Maximum Requirement (besides above). 1. Translation at sight of average passages from Cicero and Virgil, with questions on usual forms and ordinary constructions, and on prosody. 2. Translation into prose of passage of connected narrative. Collar's and Daniell's compositions indicate kind and quality.	**No requirement.**
MOUNT HOLYOKE COLLEGE	**Grammar**	Including prosody.	**Same as in A.B.**
	Prose Composition	Jones's Exercises entire or an equivalent.	
	Cæsar	Four books of Gallic War.	
	Cicero	Seven orations. The Manilian Law may count two. Verse not accepted for prose.	
	Virgil	Six books of Æneid.	
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY.		Simple exercises in translation together with elements of grammar. First four books of Cæsar's Gallic War; first three books of Virgil's Æneid, with scansion of hexameters. No equivalents.	
WELLESLEY COLLEGE	**Grammar**	[A B. Course.] Including prosody.	
	Cæsar	Four books of Gallic War.	
	Cicero	Seven orations or six including Manilian Law.	
	Virgil	Six books of Æneid; equivalents accepted, but not verse for prose or *vice versa*.	

GREEK

		A.B. COURSE.	PH.B. AND B.S. COURSE.
AMHERST		Grammar.	**None.**
		20 exercises in Jones's Prose Composition.	
	Xenophon	4 of Anabasis or 100 pp. Goodwin's Reader.	
	Homer	3 of Iliad.	
		Translation at sight.	
HARVARD UNIVERSITY		Candidate may be admitted without Greek or with minimum requirement of Greek or with maximum.	**None.**
		Minimum Requirement. Translation at sight of simple Attic prose with questions on forms and constructions.	
		Maximum Requirement (besides above). 1. Translation at sight of average passages from Homer or of less difficult passages from both Homer and Herodotus, with questions on forms, constructions, and prosody.	
		2. Translation into Attic prose of connected narrative.	
		Collar and Daniell's, Allinson's, Woodruff's compositions indicate kind and quantity of work.	
MOUNT HOLYOKE COLLEGE	**Grammar**	Required.	**Not required, but may be offered in place of modern language.**
	Prose Composition	Jones's.	
	Xenophon	Four of Anabasis.	
	Homer	Three of Iliad.	
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY.		**None.**	
WELLESLEY COLLEGE		[A.B. Course.] Optional, for either French or German may be substituted in part for Greek, or both French and German for all the Greek.	
	Grammar	**Maximum Requirement.** Hadley-Allen's or Goodwin's, with some book of 1st Lessons. Etymology must be thoroughly mastered.	
	Prose Composition	Collar and Daniell's, Jones's, Winchell's, or Woodruff's, entire.	
	Sight Translation	Of Attic and Homeric Greek.	
	Xenophon	Three of Anabasis.	
	Homer	Three of Iliad with Scansion.	

MATHEMATICS

		A.B. COURSE.	PH.B. AND B.S. COURSE.
AMHERST	**Arithmetic**	With metric system.	**Same as A.B.**
	Algebra	Through quadratics, including radical quantities, proportion, progression, binomial theorem for positive integral exponents.	
	Geometry	Plane.	
HARVARD UNIVERSITY	**Algebra**	Through quadratics.	[B.S. Course]. Algebra as in A.B. Plane geometry. Solid. Books VI, VII, VIII, XI of Chauvenet's. Optional requirements: 1. Logarithms and trigonometry: Wheeler's Logarithms or the unbracketed portions of Pierce's Elements of Logarithms, Wheeler's Plane Trigonometry, Problems in Plane Trigonometry, Pierce's Mathematical Tables. 2. Analytic geometry: Briggs'. 3. Advanced Algebra: Wentworth's College to Article 498, omitting chapters xix, xx, xxiv, xxv, xxvii, xxviii.
	Geometry	Plane. Optional requirements. Trigonometry. Logarithms: Plane with its application to surveying and navigation. Solid geometry. Elements of analytic geometry. Advanced algebra.	
MOUNT HOLYOKE COLLEGE		Proficiency in Arithmetic, including metric system, must be attested by certificate showing that student has passed creditable examination in that subject.	**Same as A.B.**
	Algebra	College Algebra through quadratics, proportion, and progressions.	
	Geometry	Plane—As found in Chauvenet or equivalent, including original work.	
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY.		Algebra: Through Quadratics, Progressions, Continued Fractions, Permutations and Combinations, Doctrine of Limits, Nature of Series, Method of Indeterminate Coefficients, Fundamental Properties of Logarithms, Compound Interest and Annuities. Plane Geometry: As much as is contained in first five books of Chauvenet's. Solid and Spherical Geometry: As much as is contained in the last four books of Chauvenet. Trigonometry and use of Logarithms: As much as is contained in first six chapters of Newcomb's Larger Trigonometry, and in articles 75-78 of chapter VIII, with explanation of first five tables in Newcomb's Five-figure Logarithmic and Trigonometric Tables.	
WELLESLEY COLLEGE	**Algebra**	[A.B. Course.] Proportion, inequalities, powers, and roots, quadratics, arithmetic, and geometric progression.	
	Geometry	Chauvenet or equivalent.	

FRENCH

		A.B. COURSE.	PH.B. AND
AMHERST		**None.**	[Ph.B. 2 of these l in, French, G The work in college or This includ knowledge ability to r English i French and easy French 400 pages descriptive p been read c
HARVARD UNIVERSITY		For this degree, four sets of requirements are offered, of which two require both elementary French and elementary German and permit advanced French and German, and two require either elementary French or elementary German and permit either advanced French or advanced German.	[B.S. Either Ge required.
	Elementary French	Translation at sight of simple prose. Pronunciation emphasized.	Same as e French of A
	Advanced French	Translation at sight of standard prose. Grammar. Composition based on Daudet's La Dernière Classe and Le Siège de Berlin, Mérimée's Colomba, Sandeau's Mlle. de la Seiglière, the play. One play from each of Corneille, Racine, Molière.	
MOUNT HOLYOKE COLLEGE		**None.**	[B.S. French or Methode Grammai Six Fable Contes M veur. Two of F Plays. Two boo Prose Writ Esther, R Le Cid, C
SHEFFIELD SCIENTIFIC SCHOOL, YALE UNIVERSITY.		Storm's Immensee; Andersen's Bilderbuch ohne La Rabbiata, or Erckmann-Chatrian's Le Consc La Petite Fadette. The applicant will be require sight easy selections, and to have such a knowle as will enable him to read intelligently the prescrit ity in prose composition required. In 1897 and at be specified, and the required translation will be from easy prose selections. In other respects the be the same as in 1896.	
WELLESLEY COLLEGE		[A.B. Course.] One of three combinations required: Greek a Greek and French, or French and German. Of th imum requirement in one language must be met. quirement in the other will be accepted. Maximum requirement: Time required, five times a week for two years. *Grammar:* A thorough knowledge of accidence of French syntax; the uses of modes and tense idiomatic expressions. *Reading:* 500 pages of such texts as Contes L'Abbé Constantin, Halvéy. Récits d'histoire de I La canne de jonc, A. de Vigny. La Chute, V. H Bôcher's series of college plays. Le protegé de M Mariner. Le bourgeois gentilhomme, Molière. *Conversation:* *Translation* into French of simple English prose Minimum requirement A: Identical with first year of maximum requireme *Grammar:* Regular and more common irregu and position of pronouns and adjectives; the comm article; partitive constructions. *Reading* and *sight translation*, 200 pages of such choisis, Daudet. L'Abbé Constantin, Halvéy. Le Antoinette, Mariner. Le cigale chez les fourmis,	

	GERMAN			SCIENCE			HISTORY			ENGLISH.
PH.B. AND B.S. COURSE.		A.B. COURSE.	PH.B. AND B.S. COURSE.		A.B. COURSE.	PH.B. AND B.S. COURSE.		A.B. COURSE.	PH.B. AND B.S. COURSE.	
[Ph.B. Course.] 2 of these languages: Latin, French, German.		None.	Two of these languages: Latin, French, German.		None.	Either Physics or Chemistry. Physics, Gage's Introduction.	**Greek**	To death of Alexander.	Same as A.B. and	**Reading and Practice.**—A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. **Preliminary Examination in 1896, for the Class entering in 1897.**—Shakespeare's As You Like It; De Foe's History of the Plague in London; Irving's Tales of a Traveler; Hawthorne's Twice-Told Tales; Longfellow's Evangeline; George Eliot's Silas Marner. **Study and Practice.**—This part of the examination pre-supposes more careful study of each of the works named below. The examination will be upon subject-matter, form, and structure, and will also test the candidate's ability to express his knowledge with clearness and accuracy. **Final Examination in 1897.**—Shakespeare's Merchant of Venice; Burke's Speech on Conciliation with America; Scott's Marmion; Macaulay's Life of Samuel Johnson.
The work of 1st 3 terms in college or its equivalent. This includes a general knowledge of grammar, ability to render common English into idiomatic French and to translate easy French at sight.			The work of first three terms in college or an equivalent. This must embrace thorough knowledge of forms, reading at sight, translation into German of simple English prose.			Chemistry: General Laws and Theories, and the occurrence, preparation, and properties of the non-metallic elements and their compounds.	**Roman**	To death of Marcus Aurelius.	English since 1461 and	
400 pages of narrative or descriptive prose must have been read critically.			250 pages must have been read.			Richter's, Rensen's, or Harris'.		Ancient Geography.	U. S. Modern Geography.	
[B.S. Course.] Either German or French required.		For this degree four sets of requirements are offered, of which two require both elementary French and elementary German, and permit advanced French and German, and two require either elementary French or elementary German, and permit either advanced French or advanced German.			Either Young's Lessons in Astronomy (omitting appendix) and Avery's or Gage's Elements of Physics, or	**Same as in A.B.**	**Including Historical Geography**	Either History of Greece and Rome or of the U. S. and England.	**Same as A.B.**	**Same as above.**
Same as elementary French of A.B.	**Elementary German**	Translation at sight of simple prose. Pronunciation emphasized.	[B.S. Course.] Either German or French required.	**This is preferred**	Forty experiments performed by pupil at school, selected from the University Descriptive List of Elementary Physical Experiments.			Oman's History of Greece. Allen's History of Rome or Leighton's History of Rome to death of Commodus. Higginson's History of U. S. to end of Chapter XXI, and Johnston's History of U. S., beginning at § 269. Guest and Underwood's Handbook of English History to year 1793, or Gardiner's Student's History thro' Part IX. Additional Readings to be made the bases of optional questions in the examination. Greek History: Curtius' Greece, Book I, Ch. i; Book II, Ch. iv; Book III, Ch. iii. Roman History: Beesly's The Gracchi, Marius and Sulla; Tighe's Development of the Roman Constitution. American History: Lodge's English Colonies, Chapters ii and xxii; Morse's J. Q. Adams, Chs. ii and iii; Josiah Quincy's Figures of the Past. English History: Macaulay, Chs. i and iii.		
	Advanced German	Translation at sight of modern German prose. Grammar. Composition based on Riehl's Der Fluch der Schönheit. Freytag's Aus dem staat Friedrichs des grossen. Heine's Die Harzieise. Goethe's Dichtung und Wahrheit, first three books. Lessing's Minna von Barnhelm. Schiller's Wilhelm Tell and Das Lied von der Glocke. Thirty pages of lyrics and ballads.	**Same as Elementary German of A.B.**		(See Havard Catalogue for articles to be omitted from Avery's Elements.) Optional subjects: 1. Sixty experiments in physics in addition to elementary requirement. 2. Sixty experiments in general Chemistry. Laboratory note-book required.					
[B.S. Course.] French or German. Methode Berlitz, Ier Livre. Grammaire. Six Fables de La Fontaine. Contes Merveilleux, Sauveur. Two of Bôcher's College Plays. Two books of Modern Prose Writers. Esther, Racine. Le Cid, Corneille.		**None.**	[B.S. Course.] French or German. Otto's Elementary Grammar; Das deutsche Buch von Daell; Lyric Poems and Ballads memorized. Brandt's Reader. Narrations. Memorizing. Composition. German Exercises (Stein). Fluch der Schönheit. Spielmann's Kind, Riehl. L'Arrabiata, Heyse. Equivalents accepted. Examination conducted in German.		**None.**	[B.S. Course.] Botany: Spalding's Introduction, or an equivalent. Plant Determination. Physics: Avery's Elements of Natural Philosophy or equivalent.		U. S.	**Same as A.B.**	**Same as above.**
							Greek	Myer's Eastern Nations and Greece. To Death of Alexander.		
							Roman	Allen's To Death of Marcus Aurelius.		
								Or equivalents.		
rbuch ohne Bilder; Heyse's s Le Conscrit, or G. Sand's be required to translate at a knowledge of grammar the prescribed texts. Facil- 1897 and after no texts will ion will be wholly at sight espects the requirement will		**Same as French.**			Botany: Knowledge of structure and principles of classification, together with matters pertaining to fertilization and dissemination of seeds; also some experience in plant analysis. Gray's Elements recommended.			English; Montgomery's or Ransome's; United States.		**Same as above.**
.] : Greek and German, or nan. Of these pairs a max- st be met. A minimum re- . two years. of accidence; the essentials s and tenses, and common as Contes choisis, Daudet. istoire de France, Michelet. hute, V. Hugo. Two from rotegé de Marie Antoinette, Molière. nglish prose. requirement. mon irregular verbs; use ; the commoner uses of the ges of such texts as Contes alvéy. Le protegé de Marie es fourmis, Legouvé et La-		[A.B. Course.] One of three combinations required: Greek and German, or Greek and French, or French and German. Of these pairs a maximum requirement in one language must be presented. A minimum requirement in the other will be accepted. Maximum Requirement: 1. Pronunciation. 2. Elementary grammar, the rules of which the student must be able to state in German. 3. Ability to understand spoken German. 4. Fluency in conversation. 5. Ability to understand and recite some short specimens of choice lyric poetry. 6. Ability to translate easy German at sight. 7. Ability to translate easy English into German, to write simple compositions, and to use script. These results can be obtained by the following course or an equivalent. Deutsche Grammatik by Wenckebach-Schrakamp, pp. 1–156, 198–201. Ch. Harris' Prose Composition, pp. 1–54. Reading: Deutsches Lesebuch, by Wenckebach, pp. 1–126 and 167-247. For sight reading, Meissner's Aus meiner Welt, Lessing's Minna von Barnhelm and three books of Goethe's Dichtung and Wahrheit. Conversation: Deutscher Anschauung-Unterricht, by Wenckebach, pp. 1-52, 78-82, 91-117, 128-161. Idioms, pp. 315-332. Poetry: Die Schöusten Deutschein Lieder, by Wenckebach; 1st five "Volkslieder" and numbers 2, 3, 8, 10, 14, 15, 18, 19, 20, 21, 22, 23, 26, 28, 30, 32, 33, 34, 37, 40, 42, 45, 46, 47, 50, 51, 52, 59, 60, 61, 62, 63, committed to memory. Minimum Requirement a choice of A and B:		**Physics**	[A.B. Course.] Any one of the following may be substituted for minimum requirement in Greek or French or German. The Harvard requirement or the courses outlined in the Report of the Committee on Secondary School Studies, pp. 117–127.		**U. S.**	[A.B. Course.] A brief history of U. S. to close of Revolutionary War.		**Same as above.**
				Chemistry	Remsen's Introduction to the Study, or course outlined in the Report of the Committee on Secondary School Studies, pp. 117–137.		**Greek**	To Peloponnesian War.		
							Roman	To close of first century A.D.		
				Zoology	Colton's, except those parts requiring use of compound microscope.		**English**	May be substituted for Greek by those not offering Greek language.		

WELLE				Homer	Three of Iliad with Scansion.		Geometry	Chauvenet or equivalent.			and position of pronouns and adjectives; the comm article; partitive constructions. *Reading* and *sight translation*, 200 pages of such choisis, Daudet. L'Abbé Constantin, Halvéy. Le Antoinette, Mariner. Le cigale chez les fourmis, biche. Prise de la Bastille, Michelet. *Conversation* · *Composition:* Translation into French of Engl short connected passages. Minimum requirement, B: Equivalent to first year of maximum requireme *Grammar:* as for minimum A. *Conversation* and *composition* of minimum A *n* instead there is the *addition* of 100 pages to the an required in minimum A.	
	Prose Composition	Equivalent to whole of Jones' composition.			Minimum Requirement. Systematic Study of Etymology from Goodwin's or Hadley-Allen's Grammar with book of 1st Lessons. At least three chapters of Anabasis; practice in writing Greek.							
		Constant practice in sight translation urged.			(This does not admit to a College course in Greek.) Idiomatic English in translation insisted on.							
WESLEYAN UNIVERSITY	Grammar	Including prosody. Roman pronunciation.	[Ph.B. Course.] Same as in A.B. [B.S. Course.] No requirement.	Grammar	Hadley-Allen's or Goodwin's.	None.	Algebra	Through progressions, including use of Binomial Formula for positive integral exponents. Wentworth's Elements, or 1st seven books of Newcomb's College.	[B.S. Course.] Same as A.B., with addition of 1. Solid geometry, equivalent of last four books of Chauvenet's. 2. Plane and spherical trigonometry, with use of logarithmic and trigonometric tables. 3. Analytical geometry, including straight line, the circle and elementary properties of conic sections.		None.	[Ph. Either Fr I. Whit Grammar, Drill in De Maist bérienne I Cité d'Aos Champfl de Faïenc Jargal. Mérimée Verne— de en Qua Or equiv enable ca easy passa to answer matical qu [B There a requireme choice of In two of language ther Frenc or Germa group bo German I II or Gern II. Wh Part II. Roolier' Composit Balzac— P.Loti— Beauma bier de Se Musset- V. Hug Racine- Moliére Feuillet Jeune Ho Ohnet – Forges.
	Cæsar	Gallic War. Books I–IV.			Prose Composition.							
	Cicero	Four orations against Catiline, orations for Archias and Manilian Law.		Xenophon	Four of Anabasis.		Geometry	Plane—Equivalent of 1st five books of Chauvenet's.				
	Virgil	Eclogues. Æneid's books I-VI.		Homer	Three of Iliad.							
	Sight Translation	Of both prose and poetry.			Sight translation from Xenophon.							
	Prose Composition	Of easy sentences and connected narrative.										
		Equivalents accepted.										
WILLIAMS COLLEGE	Grammar	Allen and Greenough's Gildersleeve's, Harkness's.		Prose Composition	Optional, French and German, (or either with advanced mathematics) being substituted.		Arithmetic	Including metric system.			In place of Greek there will be accepted two years' course in either French, or German, or one year's course in either, with one year's advanced mathematics. 1st year. Ability to translate simple prose at sight, acquired by reading 500 pages. Elementary grammar, Grandgent's short grammar or equivalent. Good pronunciation. Composition: 25 pages of narrative must be translated into French, besides usual grammatical exercises. 2d year. Ability to translate standard French at sight, acquired by reading 3,000 pages, including not less than two plays each from Corneille, Molière, and Racine. Edgren's Compendious Grammar, or a full equivalent. Composition: 100 pages, chiefly narrative prose, must be translated into French. Heath & Co.'s Materials for French Composition recommended. History of French literature from earliest times to 1700. For this a French text-book must be used. Questions on examination will be in French and must be answered in French. Duval or Petite de Julleville are recommended.	
	Cæsar	Four books.		Grammar	Hadley-Allen's or Goodwin's.		Algebra	Through quadratics, including radical quantities and simultaneous equations.				
	Cicero	Seven orations.			Jones's, or Woodruff's, or Collar and Daniell's, or Allinson's (pp. 105–121).		Geometry	Plane.				
	Virgil	Bucolics and six books of Æneid with prosody.		Xenophon	Four of Anabasis or 112 pp. of Goodwin's Reader.		Trigonometry	Of those who do not offer Greek the following additional requirements are made: Solid—Chauvenet, Books VI–IX; Wentworth, Wells, or Newcomb, Books VII–XI. Plane—including goniometry and use logarithmic tables. First chapters of Chauvenet, omitting fine print, or first four chapters of Wentworth.				
	Sight Translation	Of easy prose.		Homer	Three of Iliad.		Algebra	Properties of quadratic equations, imaginaries, inequalities, ratio and proportions, progressions, binomial theorem with positive whole exponents, variables and limits, series, logarithms and complex numbers. Wentworth's or Wells' College or Hall and Knight's or Todhunter's Higher Algebra.				
		Equivalents from other authors will be accepted in part. Roman pronunciation.			Sight translation of easy prose.							
YALE UNIVERSITY	Grammar	Required.	[Ph.B. Course.] Elements of grammar with exercises.	Grammar	Required.		Algebra	Through quadratics, proportion, progressions, continued fractions, permutations and combinations, binomial theorem, method of indeterminate coefficients.	[Ph.B. Course.] As in A.B. and in addition series, limits, properties of logarithms, compound interest, annuities.		Either French or German. Ability to translate easy prose at sight. Facility in prose composition.	[Pl Either Sam
	Cicero	Orations against Catiline and for Archias, and any one of the following: "Milo," "Manilian Law," "Cato Major," or "Marcellus," and the 14th Philippic.		Xenophon	Four of Anabasis		Geometry	Plane—Demonstrations and constructions, numerical problems, involving metric system and use of logarithms.	As much as is contained in 1st 5 books of Chauvenet. Equivalent of last 4 books of Chauvenet.			
	Virgil	First six of Æneid, and either the Bucolics or the 8th and 9th books of Æneid. With prosody.	1st 3 of Æneid, with scansion.	Homer	Three of Iliad, with prosody.		Trigonometry	Solid and spherical. Use of logarithms.	Equivalent of 1st 6 chapters of Newcomb's Larger Trigonometry and in articles 75–78 of Chap. viii with explanation of 1st 5 tables in Newcomb's 5-figure logarithmic and trigonometric tables.			
	Ovid	Metamorphoses, sight translation.		Sight Translation	Of Xenophon.							
	Sight Translation	Of passages from Nepos and Cæsar.										
	Prose Composition	Of connected English.		Prose Composition	Of connected English based on first four of Anabasis.							
	Cæsar		1st 4 of Gallic War. *No* equivalents accepted.									

ives; the commoner uses of the pages of such texts as Contes n, Halvéy. Le protegé de Marie ez les fourmis, Legouvé et La- t. rench of English sentences or um requirement. minimum A *not* required, but ages to the amount of reading		bach, pp. 1-52, 78-82, 91-117, 128 161. Idioms, pp. 315-332. Poetry: Die Schönsten Deutschein Lieder, by Wenckebach; 1st five "Volkslieder" and numbers 2, 3, 8, 10, 14, 15, 18, 19, 20, 21, 22, 23, 26, 28, 30, 32, 33, 34, 37, 40, 42, 45, 46, 47, 50, 51, 52, 59, 60, 61, 62, 63, committed to memory. Minimum Requirement a choice of A and B: A. Deutsche Grammatik, pp. 1-130, 262-270. Prose Composition, pp. 1-21. Reading: Deutsches Lesebuch, pp. 1-125, 167-247. Poetry committed to memory: Lesebuch, pp. 220-224. Speaking exercises: Deutscher Anschauungs-Unterricht, pp. 1-36. Idioms, pp. 315-319. B. Ability to read easy prose at sight, acquired by reading 200 pp. of such texts as Andersen's Bilderbuch ohne Bilder. Fouqué's Undine, Chamisso's Peter Schlemihl.		**Zoology**	Colton's, except those parts requiring use of compound microscope.		**English**	May be substituted for Greek by those not offering Greek language.		
					Physical Geography.					
[Ph.B. Course.] Either French or German. I. Whitney's Practical Grammar, Part I. Drill in pronunciation. De Maistre—La Jeune Sibérienne Le Lépreux de la Cité d'Aoste. Champfleury—Le Violon de Faïence V. Hugo—Bug Jargal. Mérimée—Colomba. Verne—Le Tour du Monde en Quartre-vingt Jours. Or equivalent such as will enable candidate to read easy passages at sight, and to answer elementary grammatical questions. [B.S. Course.] There are three groups requirements from which choice of one may be made. In two of these the modern language requirement is either French I (as in Ph.B.), or German I. In the third group both French I and German I and either French II or German II. II. Whitney's Grammar, Part II. Roolier's second book of Composition. Balzac—Le Curé de Tours. P. Loti—Pècheur d'Islande. Beaumarchias—Le Barbier de Seville. Musset—Selections. V. Hugo—Hernani. Racine—Andromaque. Moliére—Le Misanthrope. Feuillet—Le Roman d'un Jeune Homme Pauvre. Ohnet—Le Maitre des Forges.		**None.**	[Ph.B. Course.] Either French or German. I. Thomas' Practical Grammar. Wenckelbach's Lesebuch. Heyse's Mädchen von Treppi. Riehl's Gerechtigkeit Gottes. Zschokke's Der tote Gast. Or equivalent, such as will enable candidate to read easy passages at sight and answer elementary grammatical questions. [B.S. Course.] There are three groups of requirements from which choice of one may be made. In two of these the modern language requirement is either French I or German I (as in Ph.B.). In the third group both French I and German I and either French II or German II. II. Schiller's Wilhelm Tell. Lessing's Minna von Barnhelm. Goethe's Hermann und Dorothea. Freitag, Gutzkow, Auerbach. Eichendorff, Spielhagen, and others. Collateral readings from these authors. Prose composition.		**None.**	[B.S. Course.] Any one of following 3 or all 3. 1. Botany and Physical Geography. (*a*) Gray's Lessons, with ability to dissect flowers and to write descriptions of them. (*b*) Geikie's Elementary Lessons. 2. Chemistry: (*a*) Eliot and Storer's Manual, omitting chapters xv-xviii inclusive, or Remsen's Elementary Course. (*b*) Certified laboratory note-book, showing at least 50 experiments. 3 Physics: (*a*) Carhart and Chute's Elements, or Gage's Introduction to Physical Science. (*b*) Certified laboratory note-book showing at least 30 experiments involving careful measurements. These may be taken from Worthington's Laboratory Practice or Chute's Laboratory Manual.	**Greek**	To capture of Corinth, 146 B. C. Myers' Eastern Nations and Greece, beginning with Section II.	[Ph.B. Course.] Same as A.B. [B.S. Course.] None.	Same as above.
							Roman	To death of Marcus Aurelius. Allen's pp. 1-275.		
							Geography	Ancient Geography. Tozer's Primer.		
		In place of Greek there will be accepted, two year's course in either French or German, or a one year's course in either, with a one year's course in advanced mathematics.					**Greek**	To death of Alexander. Smith's Smaller or Oman's.		Same as above.
	1st year	Ability to translate simple prose at sight, acquired by reading 250 pp. of narrative prose. Proficiency in elementary grammar. Facility in prose composition. Ability to pronounce.					**Roman**	To reign of Augustus. Leighton's.		
	2d year	150 pp. of prose fiction and also Freytag's Doktor Luther. Lessing's Minna von Barnhelm. Schiller's Wilhelm Tell. Goethe's Hermann und Dorothea. Lyon's Schiller's Leben und Werke. Equivalents accepted. Ability to translate at sight. Facility in composition acquired by translating 75 pp. narrative prose into English.						Candidates not offering Greek Language, may substitute for Greek History, either Montgomery's English or Montgomery's U.S. or equivalents.		
[Ph.B. Course.] Either French or German. **Same as in A.B.**		Either French or German. Ability to translate easy prose at sight. Facility in prose composition.	[Ph.B. Course.] Either French or German. **Same as in A.B.**		**None.**	[Ph.B. Course.] Botany. Gray's Elements. Experience in analysis of plants.	**Roman**	To Death of Augustus.	U. S.	Same as above.
							Greek		English, such as Montgomery's or Ransome's Short History.	

High School Admission Questions.

TABLE XIV.

Arithmetic.

1. A man sold two houses for $1,200 each; on one he gained $\frac{1}{8}$ of the cost price, and on the other he lost $\frac{1}{5}$ of the cost price. How much did he gain or lose on the two houses?

2. Change the following to decimal form:

$$\tfrac{1}{6};\ \tfrac{4}{25};\ \tfrac{1}{3};\ \tfrac{3}{160}.$$

Find the value of the following:

$$\tfrac{1}{2} + .25 + \tfrac{3}{8} - .12\tfrac{1}{2} + \tfrac{1}{5} + \tfrac{3}{10} + .16\tfrac{2}{3} + \tfrac{1}{3} - \tfrac{7}{10} + .2.$$

3. Henry bought a boat for $8.50, and sold it at a gain of 25 per cent., and the buyer sold it at a loss of 20 per cent.; what did the latter receive for the boat?

4. A lawyer's commission for making collections for a firm, at $2\frac{1}{2}$ per cent., is $1,600; how much did he collect?

5. A speculator sold two dwelling-houses for $6,090 each; on one he gained 16 per cent., and on the other he lost 16 per cent.; how much was gained or lost by the sale?

6. Find the value of

$$\frac{\tfrac{1}{2}\text{ of }3\tfrac{1}{2}}{8\tfrac{1}{3} \div 11} + (.03\tfrac{1}{2} - .0875 + 8\tfrac{1}{3})$$

7. If, by selling goods at $16\frac{2}{3}$ per cent. profit, a merchant clears $747, what was the cost of the goods?

8. A man worked $25\frac{3}{4}$ days, and after paying his board and other expenses with $\frac{2}{5}$ of his earnings, he had $37.08 remaining; what were his daily wages?

9. Write a note, using the following data: Date, June 15, 1890; principal, $300; time, 6 months, 4 days; interest, 5 per cent.

10. There are 1,900 cubic yards of dirt, and 1,000 cubic yards of stone in a street. How much will it cost to excavate the street, at $1.75 a cubic yard for the stone, and 30 cents a cubic yard for the dirt?

II.

1. Add eighty-four million fifteen; sixty-seven thousand and sixty-eight hundred thousandths; five million and ten thousand seventeen millionths; three hundred thousand twenty hundredths; nine hundred million twenty-seven. (Write answer in words.)

2. Multiply $\frac{2}{3} + \dfrac{4\frac{1}{2}}{6}$ by $(\frac{2}{3}\text{ of }\frac{3}{4} - \dfrac{1\frac{1}{4}}{7\frac{1}{5}})$ and express answer in decimal form.

3. Change 17 pints to gallons. Change 3 days to decimal part of a year.

4. If in a day the rain falls one inch in depth, how many gallons of water will fall on one acre?

New York is 3° east from Washington, and San Francisco is 45° 25′ west. When it is noon at San Francisco, what is the time in New York?

5. How many yards of carpeting should be purchased to cover the platform, supposing it to be 12 ft. long and 6 ft. wide, the carpeting being 27 in. wide?

6. Write in the form of common fractions the following: $62\frac{1}{2}\%$, $133\frac{1}{3}\%$, $6\frac{1}{4}\%$, $\frac{1}{4}\%$, $83\frac{1}{3}\%$. Give rule or formula for finding percentage when base and rate are given; for finding rate when base and amount are given.

(*a*) A merchant bought 460 bbls. of flour @ $3.75. He sent the flour to an agent, who sold it at an advance of $6\frac{1}{2}\%$, and charged $\frac{1}{2}\%$ commission. The merchant sent the net proceeds to an agent to purchase molasses, after deducting commission of $1\frac{1}{4}\%$. How many gallons, at 60c., could the agent purchase?

Wishing to settle a bill of $710, a man borrowed the money from the bank for 90 days at 6%. For what sum must he draw his note?

If 200 men, in 12 days of 8 hours each, can dig a trench 160 yds. long, 18 ft. wide, and 4 yds. deep, in how many days of 10 hours will 90 men dig a trench 1,350 ft. long, 4 yds. wide, and 3 yds. deep?

B owns two house lots. The first is 325 ft. square, and the second contains an area 12 times that of the first. A has a field equal in area to both of B's. How many rods square is A's field?

How does a square differ from a cube? a sphere from a circle? an angle from a triangle? a pyramid from a cone? a cylinder from a prism?

Draw a plane figure of four sides, and give four names which may be applied to it.

How much land is enclosed by a circular trotting course one-half mile in length?

Find cost of lining a tank 14 ft. long, 9 ft. wide, and 7 ft. deep, with zinc, at 40c. per sq. yd.

III.

1 Find the least common multiple of 12, 15, 22, 40, 55, and 72; also the greatest common divisor of 215, 441, and 860,343.

Subtract 185.939131 from 186.847, and multiply 323.211 by 0.20343.

2 A boy being asked to find the value of $8\frac{11}{15} + 2\frac{7}{9} + 3\frac{3}{5} + 4\frac{2}{3}$, gave as his answer 18. How great an error did he make?

Reduce $\frac{2\frac{3}{4} \times 7\frac{7}{11}}{\frac{1}{2} \times \frac{3}{4} \times 18\frac{2}{3}}$.

Change $\frac{7}{8}$ and $\frac{9}{200}$ to decimal fractions and divide the difference by .166.

3 A ship with a crew of 40 men had provisions for 3 months. If the crew were reduced to 32 men, how long would the provisions last? (Solve by proportion.)

4 A cistern can be filled by one pipe in 3 hours, and by another in 2 hours. It can be emptied by a third pipe in 1 hour 24 minutes. Supposing the cistern empty and all the pipes open, find the time of filling it.

5 Reduce 3 wks. 4 dys. 20 hrs. 6 min. to the decimal of 60 days.

How many sacks, each holding 2 bu. 1 pk. 3 qts., would be needed to hold 234 bu. 1 pk. 4 qts. of grain?

6 The market price of an article is $2.50. The dealer allows a discount of 20 per cent. and still makes a profit of $33\frac{1}{3}$ per cent. What did the dealer pay for the article?

7 Three men enter into a business partnership. A puts in $4,000 for 8 months, B $6,000 for 7 months, and C $3,500 for 1 year, and they gain $2,320. What is each man's share of the gain?

8 A person owning 10 shares of 3 per cent. stock sells it at $74 per share. With part of the proceeds he buys enough 5 per cent. stock at 105 to yield the same income. How much money had he remaining?

9 A room is 16 ft. long, 14 ft. wide, and 10 ft. high. It has 3 windows 6 ft. by 3 ft. 3 in., 2 doors 7 ft. by 3 ft., and the baseboard is 9 in. wide. Find the cost of plastering the room at 15 cents per square yard.

10 What is the metric unit of length? of capacity? of weight? Give the approximate values of each in English measures and the names of the multiples and subdivisions of any one of them.

A piece of land 2,500 meters square is sold for $35 per hektar. How much does the land bring?

English Grammar.

"The cause of American independence, moreover, was now to be presented to the world in such manner, if it might so be, as to engage its sympathy, to command its respect, and to attract its admiration. In an assembly of most able and distinguished men, Thomas Jefferson had the high honor of being the selected advocate of this cause. To say that he performed his great work well would be doing him injustice. To say that he did excellently well, would be inadequate and halting praise. Let us rather say, that he so discharged the duty assigned him, that all Americans may well rejoice that the duty of drawing the title-deed of their liberties devolved upon him."—*Webster's Oration on Adams and Jefferson.*

1 What is the simple subject and the simple predicate in each of the five sentences in the above paragraph?

Which of the sentences are complex?

2 Select from the above passage a clause used parenthetically; also a clause used as object of an infinitive.

Select from the passage three verbs, each in a different mood, and name the mood.

3 Write three simple sentences, each with its verb in the passive voice. Change the same sentences to the active form.

4 Parse the italicised words in:—"*That* boy *that* neglects his lesson, knows *that* he does wrong."

5 Give all the infinitives and participles of *beseech*, *bid*, *lay*, *go*.

"There are few[1] places more[2] favorable to the study of character than[3] an English country[4] church. I was[5] once passing[6] a few weeks at[7] the seat of a friend, who[8] resided in the vicinity of one[9], the appearance of which particularly[10] struck my fancy."—*Irving.*

6 In the above extract what parts of speech are the words numbered?

As what other parts of speech can *more*, *country*, *study*, *passing*, *one*, be used? Give examples.

7 Write the possessive case, singular and plural, of *chimney*, *army*, *hero*, *James*, *I.*

8 Write two sentences, each containing a predicate noun in the nominative case.

Write two sentences, each containing an active verb, its object, and a relative pronoun.

9 What is the object of the verb in these sentences: —

"No one suspected that he was a foreigner."
"He told where the house was."

10 Write about 300 words on any one of the following subjects: —

a An eclipse of the moon.
b A trip on a bicycle.
c How Abraham Lincoln served his country.
d Color.
e Uses of electricity.

II.

1. "Having come quietly into the room, she seated herself at once before the piano."

What phrases in the sentence? What is the use of each? Write the entire subject by itself; the entire predicate by itself.

2. Write sentences containing three kinds of adverbs.

3. "Mrs. Crane brought some plums for us."

What part of speech is each word? What two differences between the two nouns in the sentence?

4. Tell two uses of the comma. Illustrate.

5. Tell what part of speech each word underlined is:

"The dove, let loose from Eastern skies
Returning fondly home,
Ne'er stoops to earth her wing, nor flies
Where idler warblers roam."

6. (1) Write the following words in the possessive case in sentences:

(*a*) Mice (*c*) Bird (*e*) Man-servant
(*b*) Children (*d*) Fly (*f*) Feather

(2) Underline such of the following words as are in the possessive case, and supply all omitted apostrophes:

The boys took their fathers silence for consent and ran to Louis for the boat. This they filled with the childrens lunch, Jamess rods and bait, and a landing-net of mine, which was my brothers. Then, without a moments delay, they started.

7. Correct the following expressions and tell *why* they are wrong:

(1) (*a*) The man he wouldn't go.
(*b*) Them things is not what I want.
(*c*) Those kind are the ones.
(*d*) He said that oxygen and hydrogen were gases.
(*e*) He hadn't ought to speak.

(2) Which of the following sentences are correct, and why?

(*a*) { The apple tastes sweet.
The apple tastes sweetly.

(*b*) { She looks miserable.
She looks miserably.

(*c*) { I have a real sweet apple.
I have a really sweet apple.

(*d*) { I saw a tremendous high wave coming.
I saw a tremendously high wave coming.

(*e*) { Either the dog or the horse is being fed.
Either the dog or horse are being fed.

8. Write five abbreviations and give the words for which they stand.
9. Write two direct quotations, and change them to indirect.
10. Put into sentences all the forms of the verbs lie, lay, fly, begin.

Geography.

1. Locate Chicago, Queenstown, Rio Janeiro, Melbourne, Alexandria, Madras, Vienna, Denver, Savannah, Hartford.

2. Mention three of the more important exports: (1) of the United States; (2) of England; (3) of Russia; (4) of Spain; (5) of Brazil; (6) of Australia.

3. Locate exactly five of the most important cities of the United States.

4. Where are the principal coal fields of the world? Where are the grain fields? Where are the cotton fields?

5. Where are the desert areas of the world? Where is very rich soil found?

6. To what countries would you go for coffee? opium? pepper? rice? silk? sugar? turpentine? corn? wheat? mahogany? wool? raisins?

7. With what countries of Europe is most of our foreign commerce carried on? Name our principal exports.

8. Name and locate the counties and four of the principal cities in Connecticut. State what products come from each city.

9. Describe three water-ways by which the products of Chicago may reach the coast.

10. On what bodies of water would a person sail, and what countries would he pass in going from London to Cairo?

II.

1 Describe the Rocky Mountain system of North America. How is its South American extension unlike it? Describe and compare, in respect to their extent and production, the greatest valleys of the two continents.

2 Name in their order, the countries on the Pacific coast of South America, beginning at the north. Why are there no large rivers entering the Pacific? Locate and briefly describe Callao, Valparaiso, Falkland Islands, Asuncion, the Orinoco. In what zone is Venezuela? What countries lie wholly without that zone?

3 Write of the Chinese Empire in respect to its size, location, population, and productions. What is Hong Kong? Pekin? Manchooria? What comprises the Japanese Empire? Compare its people and government with those of China.

4 In what direction and through what waters is the route from Portsmouth, England, to Cronstadt? At what place could this route be shortened by opening a ship canal?

Name the most important British possessions in Africa. What ports are at the entrances of the Suez canal? Locate Cairo, Monrovia, and Cape Town; the Niger, Zambesi, and Orange rivers.

5 What is the largest republic in Europe? Describe its capital and name the important agricultural and manufactured products of the country.

What is included in the Turkish Empire? What and where is the seat of government? Where is Palestine? Armenia? Kurdistan? the Euphrates? the Bosporus?

6 Compare the Atlantic and Pacific coasts of the United States. Which region has the greater commercial advantages? Which has the most navigable rivers? Why? What are the principal exports from Boston? from Chicago? from San Francisco?

7 Name the territories of the United States. Bound the most northern; name and locate its largest river, town, and mountain. What are its chief resources?

Where is the Yellowstone National Park? Why has it been reserved by the government?

8 Describe the Niagara river. What States does the Susquehanna drain? To what States does the Delaware furnish boundaries? What natural boundaries has New York State? Locate and describe briefly Buffalo, Pittsburgh, Trenton.

9 Which State in New England extends to the highest latitude? which to the lowest? What and where are Wachusett, Mansfield, Monadnock, and Katahdin? Name a port on each of the following bays: Casco, Narragansett, Massachusetts, and Penobscot. Name three seaports of New England at the mouths of rivers.

10 Bound the counties of Connecticut which do not adjoin another State. Name the principal river in each of these counties and locate three towns situated upon it.

Describe the course of the Farmington river. What rivers unite to form the Thames? What harbor is at its mouth? Name three manufacturing towns in Hartford county. What are the mineral resources of Connecticut?

History.

1. Mention five early discoverers of America, and to what countries did they belong?

2. What was the Missouri Compromise?

3. What is a tariff?

4. Connect these men with the history of our country: Lincoln, Webster, Hamilton, Johnson, Garrison, Robert E. Lee.

5. How was Connecticut settled?

6. Mention eight famous statesmen and generals of the Revolutionary period, both English and American.

7. Give a short sketch of the life of Abraham Lincoln.

8. Give characteristics of the early colonists of the United States.

9. How have railroads and canals influenced the development of the United States?

10. What inventions have had most to do with the development of the United States? Give a brief history of one of these inventions.

II.

1. Name four discoverers who first visited the Atlantic coast and one who first visited the Pacific coast, giving also their discoveries and the name of the nation represented by each.

2. Give time and place of first permanent English settlement in America; time and place of first permanent settlement in New England. What institution started in the former settlement, and what institution started in New England?

3. Give time and cause of French and Indian war. Effect of the war as to control of territory.

4. Causes, time, and result of Revolutionary War? Last War with England? Mexican War? Civil War?

5. What were the boundaries of the country as fixed by the treaty that closed the Revolution?

What European nation then held possessions within present borders of United States?

6. Name the original states of the Union.

How was Alaska obtained?

7. Name the Presidents whom you consider most distinguished in the service of their country, and state why.

8. What is meant by the "Monroe Doctrine"? By the Dred Scott Decision? Declaration of Independence? Emancipation Proclamation?

9. What is the Constitution? When adopted? Describe our government. Name the chief officers. What are the two great political parties, and how did they originate?

10. How many states and territories in the United States? About what population? What makes a man a citizen of this country? What has caused the rapid growth and great wealth of these United States?

III

1 Name the five New England colonies, and describe the beginnings of each.

What led to a confederation of these colonies in 1643? Which of the five was not admitted into the league? Why? What name was given to the league? How was it regarded in England? How long was it maintained? How was it dissolved? What were some of its permanent effects?

2 Give an account of the struggles of Charles II with New England, and of the subsequent career of Sir Edmund Andros as governor of the country.

3 Describe the Plan of Union for the colonies proposed by Franklin in 1754. How was it viewed by the colonists and by Great Britain?

Write an account of the drafting and adoption of the Declaration of Independence.

4 Describe briefly the victory which ended the colonies' struggle for independence.

What were recognized by the Treaty of Paris as the limits of the United States?

5 Name the men who were most active in the making of the present government of this country. Explain briefly the service of each.

6 How did the United States rank among the powers of the world in 1789? How does it rank to-day?

Contrast the conditions of life here during Washington's presidency with those of the present day.

7 Give what you consider as the most important results of the War of 1812.

Describe the attitude of New England toward the war, and the doings of the Hartford Convention. Effect of the latter on the Federalist party.

What is known as the Era of Good Feeling?

What is the Monroe Doctrine?

8 Give a full account of the acquisition of California and Alaska by the United States.

9 Name the Presidents from Van Buren to Lincoln. What political party did each represent? State as clearly as you can the question or questions at issue in the election of each.

Name the men who were most prominent in shaping the course of our government between 1857 and 1861, indicating the service rendered by each.

10 What was our national debt at the close of the Civil War? In what way and to about what sum has it been reduced?

What where the main provisions of the Bland Silver Bill passed in 1878? How were they modified by the Sherman Act of 1890? What portion of the latter has been repealed? When and how?

TABLE XV.

Rules and Requirements.

I.

Rules. There are always rules applying to the internal management. The following illustrates the rules for teachers:

For the Teachers:

1 Each teacher should be in the building at 8.40 A. M.

2 No teacher should fail to give a faithful report of daily tardiness and absence in her room.

3 The conduct of scholars in each room should be governed entirely by such supplementary rules as the teacher of such room shall see fit to use.

4 No teacher shall use more time for a recitation than is allotted her in the general program, unless arrangements therefor are made at least two days in advance.

5 All recitations should begin and end promptly with the ringing of the bell.

6 A teacher is to know what scholars belong in the room to which she is assigned, in the general program, at the opening of the period.

7 Teachers should take the utmost care to see that rooms to which they come and from which they go are thoroughly aired.

8 Careless work on the part of the janitor in sweeping and dusting, or in any other way, should be promptly reported to the head master.

9 Teachers shall realize that good order and high discipline depend upon the hearty co-operation of all the teachers.

10 Therefore, any teacher having knowledge of low conduct of pupils in the halls, out-of-doors, on the street, or elsewhere, should promptly report the same, or make such pupil an object of his or her personal care.

11 And all teachers, to the extent of their knowledge and power, should aid in seeking out absentees, bringing them back and keeping them in school.

12 All marked lack of interest on the part of any scholar should be promptly reported for discipline.

13 As should also any suggestion of immorality.

14 Teachers should become close observers of all facts, within or without the building, that, in any way, concern the vital interests of high school.

15 Report blanks should be made out promptly for the head-master at the end of each school month, covering the entire work of that month.

REMARK:

One underscore implies that the rule is often violated.
Two underscores imply that the rule is very often violated.
Three underscores imply that the violation of the rule should stop at once.

II.

The following report card illustrates the requirements of good standing in these schools:

HIGH SCHOOL

Report of..

Parents are requested to examine carefully, endorse and return promptly all reports sent home.

For explanation and memorandum, see other side.

Times Tardy	Half Days Absent	Demerits in Deportment	1895		Mathematics	Eng. Lang. and Lit.	Science	Greek	Latin	Modern Languages	History	Bookkeeping		Elocution and Physical Culture	Music	Penmanship and Drawing	Typewriting	Monthly Average	Term Average	PARENT'S SIGNATURE
			SEPTEMBER	Rec.																
				Exam.																
			OCTOBER	Rec.																
				Exam.																
			NOVEMBER	Rec.																
				Exam.																
			DECEMBER	Rec.																
				Exam.																
			1896																	
			JANUARY	Rec.																
				Exam.																
			FEBRUARY	Rec.																
				Exam.																
			MARCH	Rec.																
				Exam.																
			APRIL	Rec.																
				Exam.																
			MAY	Rec.																
				Exam.																
			JUNE	Rec.																
				Exam.																

Co-operation between parents and teachers is necessary for the best success of the pupils.

(Reverse of Card)

REMARKS AND EXPLANATIONS

Discipline of the School

It is the aim of the school to give such training as will tend to make strong and successful men and women. While extending a wide welcome to all fitted to pursue the courses, it must insist on a suitable preparation for entrance and a careful grading. The pupils must be obedient, punctual, and courteous, and give a ready and close attention to every duty. Neglect of study and disobedience will be dealt with promptly and firmly. The erring will be kindly advised and warned, and, if still negligent and obstinate, will lose the privileges of the school.

Absences and Tardiness

Excuses for absences or tardiness must be in writing, signed by the parent or guardian; should state definitely the time and reason of the absence or tardiness; and should be presented at the first return of the pupil to the school.

Home Study

While the work of the school is not intended to be oppressive it is somewhat exacting. In no other way can it prepare for the rigorous requirements of after life. With most pupils the time given for study during school hours is insufficient for the satisfactory preparation of their lessons, and parents are expected to see that their children observe regular study hours at home.

Scholarship

Pupils are marked on a scale of 100; 100 indicates perfect; 90 to 100, excellent; 80 to 90, good; below 70 does not secure promotion.

Reports

Monthly reports will be sent to parents and guardians, who are requested to examine them carefully and co-operate with the principal and teachers in securing the best interests of the pupils, by written communication or frequent visits to the school.

MEMORANDUM

THE FUNCTION OF THE HIGH SCHOOL, ETC.

XVI.

To several principals the following questions were addressed :

1. What is the proper function of the High School ?
2. Why should Latin be taught to those who are not going to college ?
3. Why should Greek be taught ?
4. Why should Algebra be taught ?
5. What place should Science hold ?
6. What place and what time should English Literature as distinguished from instruction in the English Language hold ?
7. What time and place should History hold ?

Answers were received from the following :

1.	W. B. FERGUSON	Principal	Middletown
2.	ISAAC THOMAS	"	New Haven
3.	F. E. BURNETTE	"	Putnam
4.	W. R. JONES	"	Stamford
5.	GEO. H. TRACY	"	Portland
6.	H. D. SIMONDS	"	Bridgeport

These answers are given in full.

I

W. B. FERGUSON - - Middletown

(1) The proper function of the public high school is dual in character. Its primary aim should be the preparation of young men and women for "complete living," as citizens of the state and as members of society. A secondary aim should be the preparation of students for higher institutions of learning.

Courses of study should be so arranged as to develop and train most effectively the intellectual, moral, and physical powers, to broaden and clarify the mental vision by thorough instruction in the great departments of knowledge.

The management of a high school should proceed on the assumption that most young men and women may be led to become deeply interested in intellectual work and to make this their sole object in school ; that high school pupils, like other people, have moral imperfections, and that their moral natures, as well as their intellectual natures, need enlightenment and training ; that in matters of conduct and study it is wiser to lead, if possible, than to drive ; that correct self-government in life should be the ultimate aim of school discipline.

(2) Latin should be taught in the public high school, because it throws much light on the etymology and meaning of English words; because it furnishes the very best means for effective training in the correct use of English; because it necessitates practice in both analytic and synthetic thinking as few other subjects can be made to do; because its study tends to deeply interest pupils in a people and civilization that have contributed much to our own; because it is required for entrance to many colleges, technical, and professional schools; because a knowledge of Latin is useful in some professions and occupations of life.

(3) Considerations similar to those given under (2) might be urged in favor of Greek, but some of those considerations do not apply to Greek with equal force as to Latin; and, if the colleges would offer beginners' courses on this subject, I think it should be omitted from the courses of most high schools for the following reasons: only a very small per cent. of high school pupils study Greek, and few of these ever become proficient in it; it offers no mental discipline and little training in the use of English that are not afforded by the study of Latin; its difficulties demand a high order of teaching ability, and, therefore, large expense is incurred for a very few pupils.

(4) Algebra should be taught, because it provides an excellent means for introducing the pupil to processes in general reasoning; because its application to arithmetical problems makes their solution much easier; because a knowledge of it is necessary to advanced mathematical and scientific work; because it is required for entrance to colleges and technical schools.

(5) Science should hold a prominent place in the courses of a public high school, because its study trains to accurate observation, comparison, and inference, arouses an interest in nature, broadens the intellectual horizon, enriches the life, and is of great practical benefit to the world.

(6) English Literature should be a required study for all pupils. At least a sixth of the time should be devoted to it throughout the course. The reasons for giving so much attention to this subject are too well known to need stating.

(7) Perhaps no other subject in the whole realm of human knowledge, not even mathematics or logic, is so well adapted to lead pupils "to weigh conflicting probabilities, to estimate degrees of evidence, and to form a sound judgment," as History. Surely no other study enlarges the intellectual horizon so much, teaches moral lessons more forcibly, or reveals "the ways of God to men" more clearly. History should be a required study for all pupils, and perhaps a sixth of their time should be given to it throughout the course.

II

ISAAC THOMAS - - New Haven

I. The proper function of a high school is to provide opportunities of education beyond the Grammar school grade for all who wish to avail themselves of them. Those opportunities are to be as large and abundant as the liberality of their respective districts will give. Of what sort those opportunities are to be must be determined by popular demand, modified by local conditions and traditions; *i. e.*, two high schools not farther apart than Hartford and Boston might offer very different opportunities, and yet both be fulfilling the proper function of a high school.

In a community of unbounded liberality and ideal conditions, anything and everything educational within the capacity of high school youth would be included in high school opportunities. In a community of this sort the formation of courses of study would afford little trouble, and the only labor would be that of organization and management. But in each case "a condition, and not a theory" has to be faced, and courses have to be made, not as we would, but as we can, and organization and management have to be effected and carried on under the same restriction. Under any conditions, it is due to public morality, to include in courses of study matter, not simply because it is desirable, but only because most desirable, to effect a compact organization, and to carry on an economical management. Otherwise than these is public waste, which is a crime on the part of those entrusted with such matters, just as it is a public crime for a community to impose, unnecessarily, upon their public servants conditions which compel an outlay of time and strength for which the community gets no return. So much by way of general answer to your first question.

As to Courses of Study, I cannot do better than to insert at this point our present course, the result of careful thought, and several years of observation and experience.

HILLHOUSE HIGH SCHOOL

SCHEDULE OF STUDIES FOR THE YEAR 1896-97

FIRST YEAR CLASS

Classical, Scientific, English		*Commercial*	
Latin	6	Algebra	5
Algebra	5	English	5
English	4	German	4
Roman and Greek History	4	Commercial work	6

SECOND YEAR CLASS

Classical		*Scientific and English*		*Commercial*	
Plane Geometry	5	Plane Geometry	5	English	5
Latin	5	Latin	5	German	4
Greek or German	5	Botany and Zoölogy	5	Chemistry	5
English	4	English	4	Commercial work	6

Junior Class

Classical		*Scientific*	
Latin	5	Latin	5
Greek or German	4	German or French	4
German or French	4	Geometry and Algebra	5
English — One-half year	5	English	5
Algebra and Geometry — One-half year	5		

English		*Commercial*	
Latin or German or French	4	English	5
Physics	5	German	4
General History	5	Stenography	5
English — One-half year	5	Typewriting	10
Geometry and Trigonometry — One-half year	5	General Commercial work	1

Senior Class

Classical		*Scientific*		*English*	
Latin	5	French or German	4	Latin or German or French	4
Greek or German	4	English	5	English	4
English	4	Plane Trig., Field work, and Review	5	History and Civil Government	4
German or French	4	Botany	2	Chemistry	4
Reviews	2	History: U. S. and English, and Civil Government	4	Geology, Astronomy, and Phys. Geography	3
				Physiology lectures	1

Drawing — one exercise a week freehand or mechanical — is optional in all courses after the first year, but is required of those pupils who expect to teach. The third year in the Commercial Course is optional.

The figures represent the number of recitations each week.

As seems to me entirely proper, the college preparatory courses — classical and scientific — are set almost wholly by the colleges. For it must be remembered that the colleges themselves are the best judges, after all, of what is demanded of them, and what they must in turn demand of the high schools as far as they prepare youth for college. The high school might refuse to prepare for college, but having once assumed that function, and very properly, as I think, it must, of course, give the preparation the college requires. This does not preclude the high schools from doing more than the college requirement, and an examination of the above course will reveal the fact that both for the scientific school and the college there is considerably more than the catalogue requirement, especially in the English. Not only are the high schools not precluded from doing this, but are in duty bound to do it, for the sake of such as, starting in those courses with the expectation of going to college, find themselves, at the end of their high school, shut out by the accidents of fortune from doing so.

The English course is our general course, and in it an attempt has been made to include more of those departments of human knowledge which make for life. An examination of it must reveal its excellences and its defects.

As to the commercial course, I may say, in general, that I believe it to be foreign to the proper function of a high school to maintain a course in which all the work avowedly has for its object the earning of a livelihood only. That sort of course undoubtedly has some educational value just as learning a trade has some. But no one will claim that trades ought to be taught by the public schools. In particular, I will say that in our commercial course we have therefore reduced the purely commercial work to a minimum, and have made other work as valuable as we could.

II. On your second question, I am glad to give first an extract from a letter by Prof. Morris of Yale, who has allowed me to make such use of it as I think best. I am in entire accord with it.

112 College St., New Haven,
7th Dec., 1896.

My Dear Mr. Thomas:

My chief reason for thinking that it would be a misfortune to have the study of Latin taken out of the high schools is that there is at present no good substitute for it. French and German are rightly studied by other methods, modifications of the natural method, which are not so strictly disciplinary, and do not, I think, lead so directly to an understanding of the nature of language.

I do not think that the analytic understanding of language, which is so considerable a part of education, can be had from any language which is learned naturally by imitation.

I should be sorry also to see any arrangement introduced into the schools which would push the point of choice between going to college and going into business further back. As it is, that choice may be delayed until the boy is somewhat more mature.

But I will say that, as a teacher of Latin, I am more interested in good schools than in any single department. And, indeed, I do not think that the proposed change would be harmful, to any great degree, to the Latin work. The time will doubtless come when Latin will be dropped from those courses of study which do not lead to college, but it will not come until methods of teaching in other lines, especially in natural science, are much better developed.

Very sincerely yours,
E. P. Morris.

Latin should be used rather than French or German, further, because literary prose English is largely of Latin origin, and of our poetry Lowell says, "it is to the Latin that our verse owes majesty, harmony, variety, and the capacity for rhyme."

The use of good English can in no other way be so well learned as by the translation of a foreign language into it. Of course the principal thing in the study of a foreign language in high school work is to gain the ability to get the thought; but this once obtained the pupil must put it into good English. In such work teachers are proceeding upon one of the simplest educational axioms that "we learn how to do only by doing."

Again the right choice of words leading to that nice use of words, seen at its best only in classical scholars, is something, the importance of which is often overlooked in the study of Latin. And if one were disposed to go into the philosophy of the matter he might remind his readers that this choice of words, this balancing of meanings, trains in a very high sense the judicial function of the mind.

This is not the place to speak at length of the training in observation and accuracy which comes naturally from the study of Latin, but enough has already been said to make apparent my belief that the dropping of Latin from those courses of study in our high schools which do not lead to college would be a real misfortune.

III. All that has been said for Latin applies almost equally well to Greek; but my answer to this question has been given under what I have said about college preparatory courses.

IV. Upon the plea of utility — which is the very lowest in educational matters — I do not see how the study of Algebra could be left out of high school courses. It is simply impossible to go beyond the most elementary work in mathematics, or in Science without the knowledge and skillful use of Algebraic expressions and formulæ, to say nothing of the value of it to the teaching of Arithmetic.

In the teaching of patient labor, close observation, and accuracy, it is unequalled by any other study, and certainly these qualities are important. It must also be apparent to everyone that as an aid in learning how to generalize, it is invaluable. Much more could be said on it, but I forbear.

V. Science might profitably hold one-fourth of the time in a course, as in our English or general course, exclusive of Mathematics. It certainly ought not to hold more, and not so much until it has greatly changed and improved its methods.

VI. English Literature should begin with the high school work, and continue through it if possible, occupying one-fifth of the time.

VII. Three years of History make a good course in that study. I should have it begin in the second year, if possible, and continue to the end of the four years, occupying one-fourth of the time in those three years.

III

F. E. BURNETTE - - Putnam

(1) The proper function of the high school is to educate all who are able to attend it for good citizenship. Good citizenship should be inculcated in all the lower grades of our public schools, but especially emphasized in the high school.

To perform this function in the best manner, it should prepare some of its pupils for higher institutions of learning,— not for colleges only — in order to create an ambition for high attainments in the pupils of every grade of our public schools. Influence of this kind is always exerted from above downward, and not upward from below.

(2) I divide all branches of study into two kinds,— studies for mental discipline, and studies for information, well knowing that those which give mental discipline will also furnish information, and those that furnish information will also give more or less mental discipline. Latin, then, should be taught in a secondary school (*a*) for the mental discipline it gives, and (*b*) because it enlarges and enriches the vocabulary. A large per cent. of the English language comes from the Latin, and the thorough study of the Latin furnishes the pupil with better definition of the words so derived than any English dictionary extant gives him.

I would have the minimum course in Latin for all pupils two years.

(3) I would give the same reason for teaching Greek as for Latin in the High School, with the additional one for the Greek, that it cultivates greater versatility of expression.

I would teach Greek to only those who are going to college.

Both Latin and Greek form habits of critical study and close application which cannot be as well formed from any other branches of study.

(4) Algebra should be taught in a secondary school (*a*) for the mental discipline it gives, and (*b*) because it teaches both sides of a question, and requires concentrated, patient thought.

Arithmetic is less exact and teaches but one side of a question.

(5) I am wholly at sea in regard to the value and consequent place of Science in the high school.

(6) English Literature — not including instruction in English Language — should have one period a week during freshman year, two periods a week during sophomore year, and three periods a week during junior year, and one period a day throughout the entire senior year.

No branch of study stimulates thought in pupils so much as the pursuit of English Literature.

(7) History should have two periods a week throughout the entire course. By History, I mean Ancient, Mediæval, and Modern.

I classify Science in the line of discovery, English Literature and History under the head of studies for information.

IV.

W. R. Jones - - Stamford

I.

As to question first, "What is the proper function of the high school, or the secondary school?" if there were no risk in the assumption that the culture of the youth of our land had been conducted systematically, and in no sense in violation of well-understood psychic laws, and that educators are agreed as to how much real attainment the average child is capable of during his eight or nine years of school life below the high school; that the average primary or grammar school teacher is an expert, and knows the real limits of her task, and knows, too, how to keep and do work within those limits — limits that are rational, not notional; and, if there were no hazards in assuming that the leaders of culture at least feel that they have struck the bed rock of the whole great matter of education, that they have left fancy, and have come to reality, that they have parted with theory, and now see the beauty of reason and law in control of the whole system, and that, under law, there is movement, and that constant, not sporadic; and, in short, that there is a well-defined and powerful purpose running through the whole framework from top to bottom — then it would be easy to say that it is the function of the high school to take the child on, without the anguish of a convulsion, four years further, building with confidence upon the foundation wisely laid; that, in the interest of leadership, and of highest scholarship, the average high school should be ready to fit youth for the best of our colleges; that it should aim to reproduce the best known type of citizenship, keeping its rootage and its fruitage constantly in view; that it should have such a firm grasp of the moral, social, emotional, and intellectual life of the school-body, and of the community, as to serve both, in these four vast particulars, in accordance with the best known standards; and that above every other consideration, by a wise adaptation of means to ends, by a keen mastery of the great doctrine of individualism, with the courage of great trustfulness by leaving no concern of the school-body or the community out of sight for a day, the high school should shape the work of each pupil in commercial, scientific, literary, or classical course, in such a way as to produce the highest activity and fullness of life.

(Any high school, large or small, that sends out each year a band of brave young hearts with real enthusiasm for the next step in the life-struggle for daily toil, in the college, or out of college, is bound to serve the community and the nation — culture must kindle enthusiasm, or utterly fail ; the soul must have its spur within, and become self-operative.)

II.

In answer to the second question, " Why should Latin be taught in a secondary school — to those who are not going to college ? " there is a great danger of treading ways almost too well worn. We cannot break with the past, either in History, in Literature, or in Language. There is no law of progress which does not involve keeping as firm a hold as possible upon all that is wisest and best in the past. It is alone, in this sense, that the past *is* the present. " Aristotle and Plato and Thucydides and Cicero and Tacitus are most untruly called ancient writers," says Dr. Arnold, " they are virtually our own countrymen and contemporaries, but have the advantage which is enjoyed by intelligent travelers, that their observation has been exercised in a field out of reach of common men." And Sumner says " *We* are the *true* ancients." We must observe relation and proportion, speaking from peak to peak. With this in view, where shall we draw the line ? Shall we understand Emerson, Franklin, Goethe, Milton, and Shakespeare without Cicero and Plato and David ? The clearest water is at the fountain head though traffic may begin down further. It would be a fearful thing for this " great avaricious America " to lose its taste for the pure, lofty fountain springs of thought ! At best, translations and interpretations have a decided smack of the ink of Mr. Dryasdust — perhaps only another piece of " laborious trifling." It would be hard to demonstrate that the thoughts of Cicero and Plato can be strained *clear* through one or twenty translations. A master's work, in any tongue, is of more value than the topaz of Ethiopia. With experts at either task, it would be a grave problem to show beyond a doubt that pupils secure more that pertains to fullness of life from a critical study of Civics during a twenty-weeks than from a life study of the elements of Latin ; both subjects have to do with foundations. Latin is the ally in a most marked way of the subject of Civics, whether treated broadly or narrowly — and I use Civics only by the way of illustration.

(It may appear that we have only begun to teach Latin rationally. All a school needs is a great teacher in any subject — one who is not a victim of his work, and so cannot make his pupils victims.)

III.

" Why should Greek be taught in secondary schools ? " Oh ! That Greek wit ! Who is its father ? And where is the place of *such* understanding ? Translation says it is not in me. It *is* in the language, and there it will remain forever. Is our instinct for gold more unerring than our instinct for exalted ideas? Shall we turn out the Greek, and welcome the barbarian — that is, the French? In that great temple of American scholarship, rising higher each year, to forget that symmetry requires that there should be a few staunch Greek pillars, would be a downright shame! Greek is as much a part of the world-literature as the world itself is a part of the solar system; it cannot be explained away. Why discriminate either for or against it? Have it in our system of instruction for just what it is — a gem that carries a fine lustre, and gives tone to everything about it.

IV.

In answering the question, "Why should Algebra be taught in the secondary schools?" I shall dare to seem abrupt. Because Aristotle held the world chained by the abstract for two thousand years, does not argue that the race should set aside the power it attained even though in chains; but it would seem to argue, rather, that, out of balance, the concrete — the earthy — would prove even more dangerous than the abstract. The human mind as a training power, and as a marvel to be trained, is itself the grandest effect the world knows anything about, and it *might* well be asked how far can man safely tread upon his own best creations? or, this other question — shall there be no well-worn groove in the soul, made by the careful study of pure relation and unerring equality? Drop Algebra, if this effect can be produced some other way, *known to be better*.

V.

"What place should Science hold in a secondary school?" If our institutions would allow it, the highest "Title of Nobility" would be betowed upon Science at once. To put if otherwise, after a long journey in the air, the American scholar has found solid earth, his mother, and, like the Greek, he has the instructive weakness to kiss her, even though the insect life is greatly startled on every side. He is on the earth, and will be better contented, when he shall more clearly see how this startled low-life has come to claim kindred, and have its claims allowed. Bacon will never get even with Aristotle, but, for a time, at least, he should have one-third of all the attention the child has to give to anything in the high school.

VI.

In regard to question sixth, "What place, and what time should English Literature as distinguished from instruction in the English language hold in the high school?"

Let all of Literature that is marriageable be united with History without provision for divorce, and let the unmarriageable remainder be neatly and solemnly joined to the study of the English language. And let each combination include so much as can be thoroughly and rationally studied in from one-fourth to one-third of the pupil's school-time.

VII.

Question seventh is, "What place and time should History hold in the high school? The place of history should be second to none. As the record of the deeds of the race, it is the friend always standing close by the side of those nearer friends, Literature and Language, as they record the ideas and thoughts of the race. This sacred friendship is the hope of culture; wise deeds and wise ideas and wise thoughts, great deeds and great thoughts, good deeds and noble ideas, living in the yet warm embrace of language — retaining much of their original heat, are about the only things that can set on fire to a noble purpose the trusting souls of youth.

W. R. Jones.

Second Answer to Question Two.

Because it is the language of masterpieces of literature, of the master minds of the world. Because it is the foundation of modern languages so that no thorough, satisfactory study of modern language can be made without it. Because to the study and use of English, especially, it is an invaluable aid, in emphasizing salient points in English Grammar, in revealing derivations and acquired meanings of words, and in necessitating a choice of best English words for translation purposes. Because of the mind training that comes through the struggle with forms, idioms, arrangement, and rendition of Latin thought into English words.

Blanche Howe.

Second Answer to Question Three.

Why should Greek be taught in a secondary school? (To those, as I understand, not going to college.)

One of the requisites of a well-rounded education is the proper understanding of our mother tongue. The *profits* of the study are two-fold. To all pupils, a fuller appreciation of the richness and beauty of the English language. To pupils especially interested in the sciences — a more accurate sense of the meaning of scientific terms than could be gotten otherwise. The *pleasure* of the study. No one piece of literature offers more genuine delight than the reading of the Odyssey — and the one year spent with Homer suggest many names and stories which are read in after years (generally in translation), but which probably would never have been taken up by themselves had not a taste for them been previously acquired.

Sarah V. Lowther.

V.

Geo. H. Tracy - - Portland

1. The proper function of the high school is —
   (*a*) to teach the pupil to think logically and clearly.
   (*b*) " " " to recognize and respect the rights of others as sacred as his own.
   (*c*) to teach the pupil to choose honorable ends alone, and to determine to attain them by honorable means alone.
   (*d*) to teach each pupil to realize that he owes it to the community to be an honest, self-respecting, and public-spirited citizen ; and that to refuse to honor this debt, like other repudiation, is dishonorable.
   (*e*) to awaken patriotism, and an intelligent interest and pride in local history and prosperity.

   (The above may be summed up as to effects to be obtained: (*a*) as to the pupil to broaden and clarify his mental and moral vision ; (*b*) as to the community, to produce prosperity and progressive contentment.)
2. Latin should be taught in secondary schools, because —
   (*a*) of its intimate connection with the formation of words, i.e. it aids in *spelling*.
   (*b*) it gives a fullness of meaning that otherwise will not be had.
   (*c*) it makes pupils more observant and exact by study of syntax and arrangement.
   (*d*) it compels pupils to reason, in correct translation ; yes, to those who do not go to college.
3. From the value of a college education, both to the person having it, and to the community in which he lives, no barrier should be placed to any one preparing for college in the high school. If Greek were not required for admission to college, I would not have it in secondary school.
4. Because —
   (*a*) it developes reasoning more than arithmetic does.
   (*b*) in many problems frequently occurring, it furnishes easier and quicker methods of solution than arithmetic.
   (*c*) it is one of the foundations on which the mathematics of the sciences rest.
5. It should extend through the course, and should be on a par with History and Literature.
6. Should extend through, at least the last three years. It is one of the most important studies in the course.
7. History should be taught two years in high school if History of the United States is not taught ; if the latter is taught, three years.

VI.

H. D. Simonds - - Bridgeport

Answering yours of 2d instant asking my opinions upon certain questions which you had formulated concerning the high school, permit me to say that I have no desire to enter the controversy for or against high schools as a part of the public school system.

II.

SUPPLY, DISTRIBUTION, ATTENDANCE, AND SUPPORT.

These schools, secondary schools as they are sometimes called, high schools as they are generally classed, are all public schools in the sense that they are supported by taxation and are under the control of officers elected by the people. Below them and similarly managed are the elementary schools.

SUPPLY.

There are in all 68 schools returned as high schools. (See table, page 146, and classification, pp. 249–251.)

The following towns, with an estimated population in 1895 of 596,150,* have high schools:

Ansonia
Bethel
Branford
Bridgeport
Bristol
Canton
Cheshire
Cromwell
Danbury
Derby
Durham
East Hartford
Enfield
Farmington 2
Greenwich
Groton
Guilford
Hartford
Huntington
Killingly
Litchfield
Madison
Manchester
Meriden
Middletown
Milford
Naugatuck
New Britain
New Canaan
New Hartford
New Haven 3
North Canaan
New Milford
Old Saybrook
Orange 2
Plainville
Plymouth 2
Portland 2
Putnam
Salisbury
Saybrook
Seymour
Sharon
Southington
South Windsor 2
Stafford
Stamford
Stonington 3
Stratford
Thomaston
Torrington
Vernon
Wallingford
Waterbury
West Hartford
Wethersfield
Windham
Windsor
Windsor Locks
59

In the following towns, 109 in all, there is no public high school. The estimated population of these towns in 1895 was 210,173.

Andover
Ashford
Avon
Barkhamsted
Beacon Falls
Berlin
Bethany
Bethlehem
Bloomfield
Bolton
Bozrah
Bridgewater
East Granby
East Haddam
East Haven
East Lyme
Easton
East Windsor
Ellington
Essex
Fairfield
Franklin
Glastonbury
Goshen
Middlebury
Middlefield
Monroe
Montville
Morris
New Fairfield
Newington
New London
Newtown
Norfolk
North Branford
North Haven
Simsbury
Somers
Southbury
Sprague
Sterling
Suffield
Thompson
Tolland
Trumbull
Union
Voluntown
Warren

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* The ratio of the whole population to the enumerated children in 1890 was as 4.62 to 1. The enumeration in 1895 was 174,529, which, multiplied by 4.62, gives 806,323, the estimated population.

Brookfield
Brooklyn
Burlington
Canaan
Canterbnry
Chaplin
Chatham
Chester
Clinton
Colchester
Colebrook
Columbia
Cornwall
Coventry
Darien
Eastford
Granby
Griswold
Haddam
Hamden
Hampton
Hartland
Harwinton
Hebron
Kent
Killingworth
Lebanon
Ledyard
Lisbon
Lyme
Mansfield
Marlborough
North Stonington
Norwalk
Norwich
Old Lyme
Oxford
Plainfield
Pomfret
Preston
Prospect
Redding
Ridgefield
Rocky Hill
Roxbury
Salem
Scotland
Sherman
Washington
Waterford
Watertown
Westbrook
Weston
Westport
Willington
Wilton
Winchester
Wolcott
Woodbridge
Woodbury
Woodstock

109

DISTRIBUTION.

The distribution of these schools by counties is as follows:

Hartford County

Number of towns	29
Number of towns having high schools	15
Number of high schools	17
Number of children registered in high schools	1,752
Population of towns having high schools	134,280
Population of towns not having high schools	21,631
Enumeration of towns having high schools	29,065
Enumeration of towns not having high schools	4,682

New Haven County

Number of towns	26
Number of towns having high schools	14
Number of high schools	17
Number of children registered in high schools	2,039
Population of towns having high schools	230,076
Population of towns not having high schools	12,968
Enumeration of towns having high schools	49,800
Enumeration of towns not having high schools	2,807

New London County *

Number of towns	21
Number of towns having high schools	2
Number of high schools	4
Number of children registered in high schools	123
Population of towns having high schools	12,238
Population of towns not having high schools	64,163
Enumeration of towns having high schools	2,649
Enumeration of towns not having high schools	13,888

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* In this County there are free high schools in Norwich, New London, and Colchester. These schools have no connection with the public school system.

Fairfield County

Number of towns	23
Number of towns having high schools	8
Number of high schools	8
Number of children registered in high schools	769
Population of towns having high schools	127,535
Population of towns not having high schools	43,151
Enumeration of towns having high schools	27,605
Enumeration of towns not having high schools	9,340

Windham County

Number of towns	15
Number of towns having high schools	3
Number of high schools	3
Number of children registered in high schools	304
Population of towns having high schools	22,887
Population of towns not having high schools	21,460
Enumeration of towns having high schools	4,954
Enumeration of towns not having high schools	4,645

Litchfield County*

Number of towns	26
Number of towns having high schools	9
Number of high schools	10
Number of children registered in high schools	392
Population of towns having high schools	31,522
Population of towns not having high schools	24,075
Enumeration of towns having high schools	6,823
Enumeration of towns not having high schools	5,211

Middlesex County

Number of towns	15
Number of towns having high schools	6
Number of high schools	7
Number of children registered in high schools	378
Population of towns having high schools	23,996
Population of towns not having high schools	11,994
Enumeration of towns having high schools	5,194
Enumeration of towns not having high schools	2,596

Tolland County

Number of towns	13
Number of towns having high schools	2
Number of high schools	2
Number of children registered in high schools	207
Population of towns having high schools	13,615
Population of towns not having high schools	10,732
Enumeration of towns having high schools	2,947
Enumeration of towns not having high schools	2,323

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* In Winchester there is a free high school.

Map. The map on following page shows the location of these high schools. The numbers 1, 2, 3, 4, indicate the number of years in the course. (See page *255.)

ATTENDANCE

Number of Scholars. In the year 1895–6 there were registered in all these schools 5,949 scholars. Of this registration about 85 per cent. were regular attendants.

This does not represent the whole number of scholars seeking secondary education. Some boys and girls are at school in other states, and there are many endowed and proprietary schools from which there are no returns.

Registration by years was as follows:

First year	2,360	Graduate students	147
Second year	1,544	Unclassified	69
Third year	1,100		
Fourth year	729	Total,	5,949

The foregoing figures show that 35 per cent. do not enter the second year; 29 per cent. of the remainder do not enter the third year, and 34 per cent. of this remainder do not enter the fourth year.

The number of pupils registered in the high schools having a four-years course is as follows:

First year	1741	Third year	910
Second year	1158	Fourth year	729

It appears that in these schools 35 per cent. fall out between the first and second years; that 22 per cent. of the remainder leave between the second and third years, and that 20 per cent. of the remainder leave between the third and fourth years. At least 10 per cent. of the remnant do not complete the course.

Some are graduated at the end of a three-years course.

SUPPORT

These schools are supported by local taxation and state grants in the same way that elementary schools are. (See pages 5–12.)

The expense of these schools is very large. The number registered in the elementary schools is about 135,000, and in the high schools 6,000; the cost of the former is $1,692,600,* and of the latter $240.000.

The cost per capita of registration is $40.00, and in the elementary schools, $12.00.

The following table gives enumeration, registration, and average attendance in eight towns.

TABLE

	Enumeration.	Registration.			Average Attendance.			Running Expenses.		
		High Schools.	Other Schools.	Total.	High Schools.	Other Schools.	Total.	High Schools.	Other Schools.	Total.
Bristol,..........	1,818	142	1,736	1,878	90	1,162	1,252	$7,196.95	$32,666.61	$39,863.56
Hartford, ...	12,175	993	9,219	10,212	677	6,236	6,913	46,604.07	207,180.85	253,784.92
Meriden,..........	6,309	350	4,380	4,730	254	2,975	3,285	10,669.03	83,851.16	94,520.19
New Haven,.....	20,950	799	15,470	16,169	652	11,688	12,340	....	....	387,001.66
Putnam,..........	1,517	80	620	700	71	423	504	3,038.15	7,256.30	10,284.45
Southington, ...	1,106	145	960	1,105	129	704	833	4,326.73	15,489.08	19,815.81
Stamford, ...	4,071	182	3,206	3,388	158	2,038	2,196	9,089.99	49,762.82	58,852.81
Vernon, ...	1,918	133	1,361	1,494	114	1,015	1,121	5,000.00	17,331.01	22,331.01

Buildings. There are separate buildings in the following towns:

Bethel
Bristol
East Hartford
Hartford
Meriden
Middletown
New Britain†
New Haven, 2
Putnam
Southington
South Windsor (Wapping)
Stamford
Vernon (Rockville)
Wethersfield

At times the tax-payers are liberal and all things are generously furnished. There is an enormous and sometimes lavish expense. This is fostered by local pride and stimulated by constant display of the number of boys that enter college. When times are hard, and many cannot find steady employment, school is cramped and everything is refused.

On the whole, these schools are better cared for, better equipped, and more generously supported than the elementary schools. While libraries, apparatus, and care are not liberally or always judiciously supplied, by comparison all these schools are in better condition to do effective work than any other part of the public school system.

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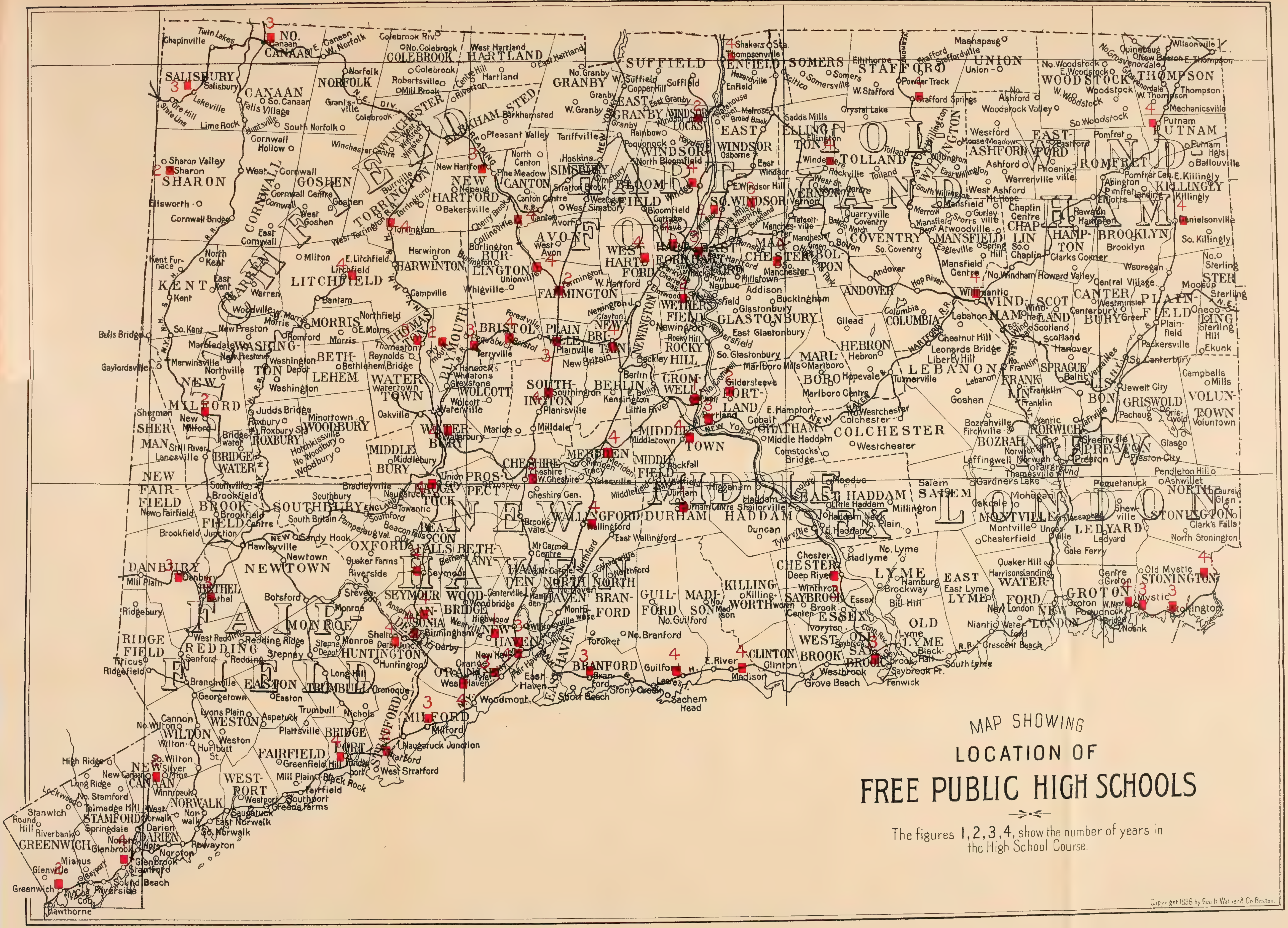
* This includes the fuel and incidental expenses of the high schools.

† Completed since September, 1896.



MAP SHOWING

LOCATION OF

FREE PUBLIC HIGH SCHOOLS

The figures 1, 2, 3, 4, show the number of years in the High School Course.

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III

Government and Administration

LAW

1. The general law authorizing the establishment of high schools and the election of a town high school committee runs as follows:

Section 2215. In addition to the schools required by law in every town, any town may establish and maintain schools of a higher grade within its limits, and for such purpose purchase, receive, hold, and convey any property, build and repair schoolhouses, lay taxes, and make contracts and adopt regulations for the management of such schools.

Sec. 2216. Any town may choose by ballot, at its annual town meeting, a committee of three, four, or five residents of the town, who shall have all such powers and duties in relation to such schools as are by law imposed upon district committees in relation to district schools. If the number to be chosen is three or four, no person shall vote for more than two; if five, for not more than three. That number of persons sufficient to fill the committee who have the highest number of votes shall be elected. In case of a tie, that person whose name stands first or highest on the greatest number of ballots shall be elected.

Sec. 2217. When any town shall maintain any school of a high grade, the board of school visitors shall prescribe rules for the admission of scholars into it,

And for their studies, books, and classification;

Examine all candidates for teachers in such school, and give to those with whose moral character, literary attainments, and ability to teach they are satisfied a certificate, stating what branches they are found capable of teaching;

Visit such school at least twice during each term.

May revoke the certificate of any teacher, at any time, for the causes provided in section 2135;

And, if the town fail to elect a committee, as provided in section 2216, shall appoint such committee, whose powers and duties shall be the same as if appointed by the town.

The following towns have high schools organized under this law:

Bristol
Cheshire
Cromwell
Danbury
East Hartford
Guilford
Hartford
Meriden
Putnam
Sharon
Vernon
Wethersfield
Windham

2. High schools may be established by districts (not towns). These schools are "higher" grades of district schools.

The law under which these are organized runs as follows:

> Section 2155. Every school district shall be a body corporate, and shall have power . . . to establish schools of different grades.
>
> Sec. 2118. . . . In said (public) schools shall be taught, by teachers found duly qualified by the school visitors, reading, spelling, writing, English grammar, geography, and arithmetic, and *such other studies* . . . as may be prescribed by the board of school visitors.

The following are district high schools:

Canton, Collinsville
Durham
Farmington, Center
          Unionville
Greenwich, Meeting House
Groton, No. 5
Killingly, Danielson
Manchester, South Manchester
Middletown
Naugatuck
New Hartford

New Haven, 2
          Westville
North Canaan, Canaan
Orange,
      West Haven

Plymouth, District 1
Plymouth, Terryville
Portland, No. 2
          Gildersleeve
Salisbury, Lakeville
South Windsor, Center
          Wapping
Stafford Springs
Stratford
Stonington, No. 3
          No. 9
          No. 18
Wallingford
Waterbury
Windsor

New Haven and Middletown are "school districts" under Section 2130 of the General Statutes, and Waterbury City district is organized under a special act.

In seven of the above towns there are two high schools, and in two towns there are three. In these towns the claims of locality could not be otherwise adjusted.

In two towns arrangements are made by which all children of the town are admitted without charge to these district high schools.

3. Towns under "town management" (Section 2193 *et seq.* of the General Statutes) can also organize high schools.

> The school committee in such town shall have in general the powers and duties of district committees and boards of school visitors, shall see that good public schools of the different grades are maintained in the various parts of the town for not less than the same length of time as would be required had no such consolidation been made.

Schools organized under this law are found in :

Ansonia
Bethel
Branford
Bridgeport
Derby
Enfield
Huntington
Litchfield
Madison
Milford
New Britain
New Canaan
New Milford
Old Saybrook
Plainville
Saybrook
Seymour
Southington
Stamford
Thomaston
Torrington
West Hartford
Windsor Locks

The leading characteristic of all these statutes is that directly or by implication they provide for schools under the regulation and control of the authorities of the towns or districts, and subject to such regulation are open without charge to all children.

In 1 and 2 there is a perplexing multitude of local officers, and their conflicting interests and duties are not bounded by any organizing and delimiting rules.

The officers provided by the foregoing statutes appear under three titles:

(1) High School Committee
(2) District Committee
(3) Town School Committee

The functions of these officers are administrative and legislative, embracing the external and internal affairs of the school.

High school committees and district committees nominate teachers for the examination and approval of the school visitors, hire and pay the teacher, inspect and care for the buildings, and manage the finances.

The school visitors are expected to examine the teachers, prescribe the studies, classify the scholars, and visit each school twice in a term.

Town school committees unite the powers and duties of committees and visitors, and are reasonably constituted and workable bodies.

The original composition of these boards and committees is accidental, and generally determined by a political caucus. Special fitness for the position is not always the first thought of a caucus. The theory is that the schools are local institutions, either district or town affairs, and that school officers are elected to carry out what the people consider right and fitting. They represent the average school sentiment and interest. The administration is as local as it can be, and is not removed from the chapter of accidents.

Generally national politics determine the *personnel* of these governing committees, but it is not true that national politics often determine their action. In one town the committee was chosen from one party for several years, and special care was taken to secure male teachers of the right politics.

Sometimes the members exercise real control of the internal affairs of the school, but generally they are indirectly influential through the appointment of teachers and the fixing of salaries.

The appointment of teachers is not made upon examination. It is quite impossible to find a high school teacher who has ever been subjected to an examination or furnished any strict evidence of qualification to teach. No instance was discovered in which the examining body had acted except to grant certificates, and most high school teachers do not hold certificates of any kind.

Often the appointment of teachers is upon nomination of the principal. The committees have no standard of appointment or promotion of teachers. They do not select the best of the candidates, but are influenced by locality and by family, business and religious interests. They may take into account knowledge and ability, the previous career, and all other qualifications, but there is no test. So where there are no national politics there is a good deal of educational politics. Sometimes a teacher not securing such promotion as he, often she, hopes for, stirs around, gets into the papers, and endeavors to influence public opinion. This activity is rewarded at the expense of the school. Thus whether the town board, the special committee, or the principal appoints, there is no test, and the teacher is an accident. The system is "hit or miss," and it is cause for trust in Providence that no more egregious and mind-destroying failures are projected upon the schools.

In some shining instances the administration is free and right. The schools are directed by literary and educational purposes, and public opinion is opposed to any manipulation to secure special favors for any.

Salaries are determined by the length of service and reputation of the teacher. Seldom was any system apparent. Novices begin at $450 to $700. Women receive less than men, but this does not mean that merit is decisive.

The board of management, either town or district, draws up the estimate of the sums that will be needed, has recourse from time to time to the joint board of apportionment or to the voters for money, and when new buildings are to be built for large sums of money.

This board also superintends all school property, appoints janitors, causes the school premises to be kept in order and properly supplied with what they need.

In fine, the legal powers and obligations of these officers are mainly the appointment of teachers, the maintenance of the buildings, the fixing of salaries, the regulation of subjects of instruction, and, in a word, everything that concerns the school exclusive of the teaching and discipline. These are usually left in the hands of the teachers.

IV

Organization and Courses of Study

I

School Day. In most schools there are morning and afternoon sessions; the school opens at 9 and closes at 12, and again at 1 to 1.30 and closes at 3 to 4.

These hours vary somewhat from summer to winter.

1. The following schools have one session beginning at 8 to 8.30 and closing at 1 to 1.30.

Ansonia
Bridgeport
Danbury
Derby
Enfield
Hartford
Huntington
Meriden
Middletown
Old Saybrook
Putnam
Southington
Stamford
Torrington

No good reason is given for one session, and no reason is urged that does not apply with equal force to all schools.

The testimony of parents is that scholars give little time to study in the afternoon.

Many teachers think that less work is accomplished than if there were two sessions; but the opinion is general that one session is easier for teachers, and that they gain much in the opportunity given for thorough preparation.

Hours of Work. The hours of work vary from 30 to 25 and even less in the week, and are divided into periods of recitation and periods of study.

Thus in a school day of five hours there would be 300 minutes. Twenty to thirty are given to recess and changing of classes and the remaining 270 (4 hours 30 minutes) devoted to recitation and study.

The recitation and study periods vary from 40 to 50 minutes. In a school day there will be six or seven of these periods.

The number of daily recitations usually required of each scholar is three.

This gives about half the time for study and half for recitation. In New Haven four recitations a day are required.

2. *Admission.* Three methods of admission are found:

(*a*) Examination of all who apply by High School authorities. (See questions, page 221).

(*b*) Entrance upon certificate of grammar school teachers. This certificate is granted when scholars have fulfilled all grammar school requirements, and is usually based upon test and examinations, no less rigid than those given by High School authorities.

(*c*) Entrance upon certificate based upon the teacher's opinion of ability.

In a few instances the entrance examination is open to all who present themselves; and scholars who have not completed the elementary course, try and sometimes succeed. This liberty is said to create uneasiness in the grammar schools. There is no reason for excluding a scholar who has satisfied all entrance requirements. It is certainly wrong that any who can advance should be detained in lower schools.

Age. Most children in the entering classes are fourteen years of age or over, and the course is finished in four years by those who continue without failure in scholarship. The graduating or finishing age is eighteen or nineteen.

Promotions. Promotions are always made upon examination.

Rules and requirements, see pages 228–231.

COURSES OF STUDY

I

The following schools—37 in all—report a 4-years course:

Ansonia
Bridgeport
Bristol
Canton
Derby
Enfield
Farmington
Unionville
Groton, Dist. 5
Guilford
Hartford
Huntington
Killingly
Litchfield
Madison
Manchester
Meriden
Middletown
Naugatuck
New Britain
New Canaan
New Haven
Orange, Dist. 1
Portland
Gildersleeve
Putnam
Saybrook
Seymour
Southington
Stafford
Stamford
Stonington
Dist. 18
Torrington
Vernon
Wallingford
Waterbury
West Hartford
Windham
Windsor

II

The following (19) have a three-years course:

Bethel
Branford
Cromwell
Danbury
East Hartford
Milford
New Hartford
New Haven
Boardman
North Canaan
Old Saybrook
Orange
West Haven
Plainville
Plymouth, Dist. 2
Portland, Dist. 2
Salisbury
Lakeville
Sharon
South Windsor
Wapping
Stonington
Dist. 9
Thomaston

III

The following have a two-years course:

Cheshire
Farmington
Center
Greenwich
Meeting House
New Milford
Plymouth, Dist. 1
South Windsor
Town Street
Stratford, Dist. 1
Wethersfield
Windsor Locks

IV

The following report a course of one year:

Durham
New Haven, Westville

The schools under II, III, and IV do not attempt to accomplish in a shorter time what class I does in four years. All without exception teach Latin, and conform to class I so far as the shorter time permits. They complete the usual course in Algebra. In fine, they need not be separately considered because, so far as they go, they exhibit no peculiarities; their studies, plan of work, and purposes are the same as class I.

Some of these schools are in a languid condition, unwilling to relinquish the defunct languages, unable to have both ancient and modern studies in full play, and struggling to become full-fledged classical schools.

Classes. The schools under I have regularly four classes, mounting upwards from the first or entering, which is the lowest, to the fourth, which is the highest. In order to carry out the requirements of the course of study each class may have two or more parallel groups. In large schools the number in each class makes such division necessary. The subdivisions are most numerous in the first year or lowest class.

In a few cases scholars are in different classes for different subjects. This system, formerly quite common, has been generally superseded by the class system, which rigidly limits a pupil to one class for all studies. Occasionally the exigencies of school work will require that a subject be omitted one year, and then taken up with a higher or lower class the next year. Thus the time of a teacher for one year is saved.

The plan of work or course of study is, under the law, fixed by the school officials of the town or district. The hours of school, the subjects of instruction, the time allotted to each, the gradual development of the course from the bottom to the top, and the general conduct of the school are nominally under the control of this governing board. Within the general limits of organization thus laid down there is little attempt at control, and great freedom is left to the teacher.

The working and supervision of these courses of study are vested in the principal alone and from him the administrative as well as the scholastic forces of the school are derived. This has its advantages. Matters of teaching and discipline coming thus within the jurisdiction of the principal depend entirely upon his character, education, training, and health. If he is a wise man, the school is good. The course of study varies with his notions. It departs from a Scientific or English standard by as much as his mind departs. He is generally a high school and college graduate with classical antecedents.

A high school principal who has given any time to the important business of preparing himself to teach a high school is an undeveloped germ.

SUBJECTS

There is a general similarity in the courses and subjects, the variations being due to the size of the school and the number of teachers. See courses, page 205.

The courses take various names — Classical, College Preparatory, Literary, General, Latin, English, Latin-English, English-Latin, Scientific, Latin-Scientific, Scientific-Latin, Business, and Commercial. None of the names except Latin, College-Preparatory, and Classical have any earmarks by which they can be distinguished. Thus "Literary" and "Scientific" both include Latin, and "English" includes Science, and General includes everything except Greek. While they are not so intended, the names are misleading, and the courses can be quite clearly divided into classical and non-classical.

In large schools the subjects are suggested and often introduced by the principal and teachers, and they construct the plan of work. At the beginning of the year the requirements of the colleges are consulted, their details studied, and the classical or college entrance course is first constructed. The high schools have no voice in formulating these requirements. The teachers are bottled up and cannot and do not attempt independent action.

For instance, in the English Literature course DeFoe's History of the Plague was frequently found, and the college requirements for the coming year were exhibited as the governing and quite satisfactory explanation.

The plan of work or courses of study are not the deliberate work of experts in education. Given the college requirements and the other studies are put in if possible. Again and again it was found that this or that modern subject could not be taught because the teaching force was not sufficient and the classical course must not be neglected.

English. Under English were variously and curiously included Composition, Rhetoric, Grammar, History, and even Physics and Chemistry. Composition often extends through the course, but means that compositions are periodically required. General History is included under the head of "English" because it is taught in English, while Roman History is comprised in the Latin course, and is not regarded as history at all. Natural Science is included under the head of English because it is part of an "English" course. There is great confusion in arrangement as well as great neglect in the treatment. The only luminous spot is the college requirements which are called English Literature and frequently stand for the whole of the subject.

The time given to English is not uniform, and it seldom appears as one of the important subjects. Generally a part of the school follows one or more of the divisions of the subject two years, two or three periods a week. In some, it occupies a term or two,—just enough to fulfill the college requirements.

One principal of a large school said English had "died out."

It is grudgingly admitted to courses of study ; neither time nor energy is given to it, and scholars cannot write or speak their own language.

There is nowhere any clearly defined and persistent course having for its purpose the attainment of facility in the mother-tongue. Indeed most principals claim that good English is best attained by the study of Latin.

English Literature. Literature is beginning to receive attention. Often, perhaps generally, it is found in the English course. An author is read for the sake of synonyms, figures of speech, or meter. In few cases, perhaps only one, was literature in any true sense taught. The literature so taught comes in all years. There is no school where English or English Literature receives the attention of Latin and Latin Literature.

History. History is taught from text-books. In some cases reading is encouraged, but generally the text-book is, as one teacher expressed it, "lived up to." There is a curious and disheartening emphasis laid upon insignificant events. The street-fights and local gossip of a small city have quite as much claim to be dignified by the name of history as much of what is topically taught. What can we think of a teacher whose class remembered as most important facts that Nero fiddled while Rome burned, and that Henry VIII had seven wives. In classical courses History is generally limited to Greek and Roman text-books as a preparation for college. The time occupied with these varies from one to two years. Sometimes the subject is taught in connection with the Latin and Greek authors.

General History appears in the English courses, so-called, and usually occupies a year, three or four recitations a week.

Not more than two schools in the state offer a four-years' course in History.

Science. Science holds an irregular and uncertain position in most schools. The subjects appear and disappear and reappear like flashes from a revolving light.

Scholars in the classical courses often take Physiology the first term, and then eschew "Science" for the remainder of the course.

Botany, Geology, Astronomy, and Zoölogy "piece out" the fitful courses which "prepare for life."

Physiology and Physical Geography here classed under Science are not taught as Science, nor do they have any scientific value. In one school Chemistry is taught in the first year.

In the second year Physics occasionally appears in courses if it is required for entrance to college. There are a few English or English-Scientific courses in which Physics appears in the second year and Chemistry in the third year, for a term or two. Ordinarily, the time occupied is three or four periods in the week.

Some schools, particularly those occupying new buildings, have laboratories and appliances for scientific work. They are not always used.

Science is the movable part of the program. It stands a little lower than the combined English mentioned above, but has not a fixed position equal to Latin or Mathematics. If any wish to pursue Science in place of Greek, or some college requirement in the fourth year, Astronomy, Botany, Geology, and Mineralogy appear for a few weeks.

Modern Languages. The modern languages, French and German, are found in various parts of the course. Usually, they begin in the second or third year. They are a substitute for some other study like Science or Greek. They occupy three or four periods in the week. In no school was any other modern language than French or German found, and German is most popular.

Latin. Latin is found in all entering classes and is pursued by three-fourths of the scholars. In most schools there is opportunity to substitute something in the place of Latin. Sometimes the substitute is alleged English, consisting of Rhetoric and Composition.

Latin always occupies five hours of recitation and a corresponding time in study.

The most experienced and highly educated teachers are instructing in Latin. English, Science, and other subjects may be turned over to the novices, but Latin is reserved for the permanent teachers. Latin thus becomes by number engaged, by the quality of the instruction, and by the stress which is laid upon it, the most important study of the high school courses.

Though not always obligatory, Latin has more time allotted to it than any other subject. It has the maximum of time in every class. In the lowest class it does not exceed Mathematics, but it everywhere exceeds English, History, and Science. There is not a course,— English, General, Latin-English, Literary, Scientific, Commercial, Business, or by whatever name called, — which is definite and given the prominence of the classical course. The best work of secondary schools is preparation for college. A modern turn, with a vague mixture of "practical" studies, satisfies a few of the schools.

Greek. Greek is invariably begun in the second year and occupies five hours in the week. It is studied by those preparing for the academic course in college, and is taught with this distinctly in view. The number studying this subject is small, and the time it occupies is large.

Mathematics. Every school required Algebra in the first year for every scholar. This subject occupies five recitation periods a week, and without exception is continued for at least a year.

In every school Geometry was required in the second year for five hours in the week.

These two subjects are required of every scholar who enters any secondary school in this state. Algebra usually occupies a year and a term, while Geometry is limited to a year, or sometimes to two terms.

In a few schools, Arithmetic precedes Algebra for a term for a short time, and a few schools review Arithmetic in the senior year as preparation for college.

Trigonometry and Solid Geometry occasionally follow Geometry for a short time.

In general, then, Mathematics occupy two and one-half to three years, five recitations a day.

The courses of study are mirrors of the tastes, not to say hobbies, of reigning teachers. Given Latin and Algebra, and all other things are added unto them. The permanent teachers devote themselves to these subjects. Teachers of English come and go, but Latin teachers go on forever. The novices teach what they know and practice what they have picked up with little or no interference. An enthusiastic student occasionally comes from a university and expends his knowledge and enthusiasm in trying to lift Science or English to their rightful places.

Discipline. What is called "discipline" is assumed to be the aim and end of all these subjects. No professional or technical direction is given. If it be known that one boy is to be a lawyer and another a machinist, no different course or instruction whatever will be prescribed. The one may have chosen Latin because he imagines he will use the language, and the other may have chosen the same subject because it is general discipline. Both receive the same instruction in the same class.

Some talk is heard about reforming the method of teaching Latin and Mathematics and there is effort to reduce the predominance of classics and to make the school studies bear directly upon the wants of modern life. A teacher occasionally has heard of "useful knowledge," but he soon rejects the term as well as the idea and rests contentedly upon discipline or training, most convenient and slippery words to justify any study.

It is not pretended that a school is in any ordinary sense useful. While the student is pursuing knowledge in the high school, he does not secure palpable advantage, but he is studying because it is good for him, or for what he will get out of it by and by. He must study for study's sake. The courses are arranged in such a way that he gets nothing except that indefinite aurora borealis called discipline, to be used by and by.

The teachers who had thought of the subject at all regarded a high school education as part of a general "training" for the mind. The words "training" and "discipline" were always used when inquiries were made as to what the object of a particular subject was. For, instance, to the question, "Why do you teach Algebra?" the answer invariably was, "To train the mind." It was asserted that Algebra trains the mind by generating ability to solve problems and to struggle earnestly with puzzles. Invariably, this was the wall against which the questioning would run.

From year to year the universities or colleges modify their requirements, and the high schools face the music and keep step. No body of teachers or school board rejects this outside standard. Probably no school board would have the temerity to insist that a whole school should be organized for the good of the children instead of for a college examination. Such a case was never heard of.

There are frequent endeavors to construct satisfactory courses for those who are not going to college. These endeavors are sporadic, depending upon the capricious energy or freak of some new member of the board, or upon the despairing demand of the parents and the community. It occasionally dawns upon the people who cannot or do not wish to send their children to college that there must be an education suited to such non-collegiate children. They make a blind effort to secure this by demanding a practical course in the high schools. This sometimes takes form in a "business course." This business course consists in type-writing, stenography, business forms and practices, sometimes going so far as to have a bank and a counting-house and other mimic show of business. Without being so planned or named this is a technical education. When book-keeping by single and double entry is taught in a high school it means that the experience and skill acquired will enable the graduate to enter a counting-house or a bank and earn a living. So too with type-writing and stenography. It would be quite as reasonable to teach cooking for three years so that a boy could be a baker, or laundrying, or dress-making for three years so that a girl could be a washwoman or a seamstress. Such endeavors are of short duration; that they do not meet the difficulty is shown by the fact that business courses are not eagerly embraced by the children nor pushed by the community. They are simply anodynes for the few who are restless. Those who take the general course are quite as likely to be found in stenography and book-keeping or baking as those who have had a business course.

Special preparation for a trade or employment has not been introduced into these schools.

It was not found anywhere that the business or industries of the place gave particular direction to the studies of the high school.

Various schemes have been tried to satisfy popular uneasiness and to quiet the questionings about the "utility" of the school course. The fresh impulse and modern ideas take the direction of Science or English, or "business," but in none of these schools do these ideas and the resulting instruction control the school. Courses have not been worked out in any extended or complete form. None have hit the right line and succeeded because they will not reject the classics.

There is not in the state a prominently good specimen of a school adapted to the needs of modern life. There is not one in which English, the mother tongue, is the center about which all circles. Neither Science nor the mother tongue is ever made the basis of the school course.

V

The Teachers, the Teaching, and Examinations

Number. The number of teachers in these schools is 263; of this number 108 are men and 155 are women.

The smaller schools are usually organized with a male principal and one or more assistants. Seven have women in charge.

The average number of pupils to a teacher is 21.

Generally the teachers have control of the subject-matter of education. They choose the subjects and their suggestions with regard to text-books are heeded. They regulate the courses of study and fix the standards or tests. They often have a voice in the admission of students to the schools by preparing the questions, and by reading and estimating the papers for admission.

No preliminary precautions are taken to insure that the education given in these schools shall be sound and well given. There is no test for high school teachers. They do not have to prove their fitness. Nominations are usually made to the board by the principal or by a committee on teachers. Sometimes there is investigation of experience, and usually there are testimonials and inquiries into character. There is no test of preparation for teaching, teaching ability, or of ability to manage, and no examination to determine education. It is assumed that a college graduate has sufficient education of the right kind.

Graduates of colleges, fresh from their books, apply, fortified with recommendations from the president or professors, purporting to show that the holders have been faithful, have attained a high rank in scholarship, and have traits of character which are sure to make them teachers. These recommendations are generally unconditional and positive. Some colleges have bureaus which give special attention to securing positions for good scholars. College professors are active in propping up eager graduates, basing recommendation upon scholarship. The students thus recommended are often really strong in their college subjects, and particularly qualified in some special branch. None of them are acquainted with the philosophy or history of education, and they are not prepared to teach any subject.

These teachers do not receive from the principal, or from any other person, much supervision. The principals of the larger schools are occupied with the details of administration, and the principals of the smaller schools teach all the time.

Often new teachers are introduced to supply vacancies. They have not been tested as to what they know and the application of it in teaching. They have not had any practice or training designed to give them a firm and sure grasp on the matters which they pretend to teach. Occasionally they have attended pedagogical courses, but these pedagogical courses are not yet important or fruitful. These persons would, under good supervision, learn how to teach by organized and well-directed practice.

The principals do not wish to be saddled with the care of novices, if they are qualified to guide them. Thus the novices do not have the advantage of observing for a time an experienced teacher, and making a start under his guidance. Such observation is an especially valuable experience for those who intend to be teachers. These beginners obtain, at the expense of the scholars, training in teaching. No other people in the world are so cruel to their children.

If these type embryos do not succeed in "government," *i. e.*, do not possess qualities which win the confidence and good will of scholars, they are called unsuccessful. If they "get along" and manage, they succeed and are allowed to remain.

There is no test of the result of their work except the examination marks of the children. If the numerical or literal marks of their classes show well, the teaching is regarded as satisfactory. If the examination test is not worked successfully, the unlucky teacher is endured and finally dropped.

There is for teachers no permanent tenure; they are usually elected year by year. There are some who have remained four or five years, but the changes are frequent. The law gives no security to the teacher. Without doubt there would be advantage in the present system if the teaching as well as the result were tested. Such a system would be better than a life appointment, because the latter tends to laziness and inefficiency. The present system means that a teacher must get along peaceably with the children, must not have any clash or difference with the principal, and must, so far as possible, be on good terms with the school committee. These being secured, good teaching will be appreciated.

Promotions of teachers are not made on any system. The teachers are transferred to higher or to lower classes by seniority or by accident. The main difference to the teacher is that the salary may be increased, and the lucrative positions are eagerly sought for. If a change in salary be possible, pressure is exercised upon the committee.

There is no fixed scale of salaries. Young ladies, fresh from college and desiring to obtain temporary experience and perhaps a little money, obtain from $500 to $600; occasionally $700, or a little more. This is more than these persons are worth. A few years of well-ordered experience ordinarily bring an increase. In small schools $500 is the maximum for women.

Very few, not more than a half dozen, women in the state are receiving $1,500. The men receive more. A young man fresh from college usually calls himself worth about $1,000, and with suitable activity and prudence in exhibiting himself he is likely to obtain this sum.

Some schools pay their principals $1,200. These men are usually young, and are always looking for a higher position with a view to more salary. The principals of the larger schools are paid from $2,500 to $3,500.

If a principal resigns or dies, an endeavor is made to secure one at a less rate than was paid for the departed.

Teachers are not overpaid if their work be good. But the question whether they can teach or not and do teach or not does not affect the salary. Some who were not teaching at all were getting the best salaries. Not much real teaching was observed, but the best teaching was not co-existent with the best salary.

If there be a superintendent of schools, his influence on the teaching is sometimes felt. Connected as he is with the board, the teachers, and the people, he can be a wise guide. Often the high school principal has managed the school many years, and has petrified views of high school management and instruction. The superintendent or visitor is a bold man who locks horns with this principal.

Moreover, it is supposed that a superintendent will manage the elementary schools and get the children ready for the high school, and not bother himself or annoy others by pursuing his work farther. Nominally there are qualified teachers and supervision, but no teachers are found who have been examined and there is no definite supervision.

The question whether teachers are giving themselves with true professional pride and energy to the work is not easy to answer. There was sometimes, though not often enough, exhibition of the professional enthusiasm and pride, which proceeds from genuine appreciation of and interest in the subject and the individuals of the classes. In too many cases there was manifest that asperity, which results from mistaken notions of dignity or from imperfect digestion.

In not more than three or four schools was real teaching as distinguished from examination, found. Usually a lesson is given, consisting of so many pages or so many examples; the recitation hour is occupied in finding out whether this lesson so given has been learned. A lesson in Algebra is assigned, say twelve examples on the thirtieth page, and then the recitation hour is occupied with finding out whether the scholar has "done" them. In a recitation in History the lesson consisted in part of the list of Roman Emperors in order from Augustus to Trajan, and the only question possible was whether the right succession and the years were correctly given.

There is no opportunity for skill except in questioning. This questioning, if mere questioning or constant examination be teaching, was often without preparation and aimless. It sometimes hit the mark, and sometimes did not. It is always suggestive of the man who went out to kill a bear and hit a calf. There was little evidence of special preparation on the lessons. In Latin classes taught by experienced teachers there was evident as much preparation as results from going over a subject year after year, and if eternal examination on a definite line be teaching, the best teaching was found in the Latin classes.

Methods and Purposes of Teaching

Why the different subjects were taught was asked with a view to ascertain the teacher's object in the daily work. In noting the arguments for the several subjects as well as the counter arguments, the language of those who have discussed the value of each subject may be reproduced.

Latin. To the question why Latin should be taught the usual answer was that the subject had been handed down to be transmitted, unimpaired, to succeeding generations, and that the colleges required it.*

If the matter were pursued, there would be a variety of answers all traversing the usual ground.

1. *A certain range of literature is locked up in the Latin language, and, therefore, it is necessary to open this language.* To the suggestion that, in the course of time, all the literature contained in Latin has been transferred to our own tongue, and that the interest has apparently ceased for the study of the subject on this account, the answer is that the real spirit of the literature can never be inhaled until the original is read.

It is a question whether the trouble of learning the language should be incurred for the purpose of appreciating the literature. We are conscious of the necessary defects of the best translations, but there will be few to whom it will be of advantage to spend several years in learning any language in order to master it in its greatest purity and precision. Translations by competent authors are far superior in clearness and authority to the translations of merely ordinary scholars. It is doubtful whether high school scholars imbibe the spirit of the original better than the casual reader of a good translation.

One principal asserted with great earnestness that the Greek and Roman writers were the greatest that the world had produced, illustrating by Homer, Thucydides, Aristotle,

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* One eminent college professor publicly and seriously announced that the reason for studying Latin is that it is worth while to study it.

Virgil, and Plautus. The answer to this has been made — all the excellences of these writers cannot be made apparent without a thorough aquaintance with the original tongue, and this is seldom gained,— never by the scholar who stops with the high school. The same teacher, when asked whether there was any modern writers with whom it was worth while to be acquainted, replied that in comparison with these ancient authors, there was no such modern writer. The mind which thus rejects the modern would revel in the ancient writers, and should secure thorough acquaintance with them.

2. Occasionally it is held that Latin *is studied for the indispensable information to be found in the books.* Certain professions are said to rely upon it for some points of information not fully communicated by our own language. It is said that law cannot be thoroughly understood without Latin, because the Roman code is written in Latin, and certain legal terms have been transferred to our language.

Two or three centuries ago there was sense in studying these languages sufficiently to read the books written in them, yet they are still continued in our high schools as if they had this original use unabated.

Teachers invariably urge that this original function has not yet passed away, but neither of the reasons adduced will bear rigorous scrutiny, and they are not really relied upon as the main justification.

Numerous indirect and secondary advantages not connected with understanding the literature, or getting information, are said to make Latin an acquisition adequately rewarding youthful labor.

The usual phraseology for describing the secondary benefits of Latin is that it furnishes training and that if it does not furnish information, it furnishes discipline.

1. One of the secondary advantages thus insisted upon is that a *translation requires an act of judgment, a selection of the proper English word to convey the meaning so that the translation of Latin re-acts upon the mastery of our own language.* Another form of the same contention is that Latin conduces to good composition in our own language. This assumes that Latin is as good as dead, and that if it were not for this secondary use of improving English, it would be superseded entirely.

The teacher ought in this case to think mainly of the English part of the work, to see that scholars succeed in the English translation whether they succeed in any other part or not. They may be in a state of considerable ignorance of Latin forms and derivations, but defects in English expression ought to be corrected. We do not hear speak, or read the language, we do not need absolutely to know the meaning of every word, and we could for this purpose dispense with some of the technicalities of grammar. The words and grammar would be used exactly so far as to serve this purpose of language training and for no other purpose.

2. Stress is laid upon the fact that the Latin is related to our own language by derivations and that derivations should always be near the top or uppermost in the student's mind. Books are constructed in which roots and stems are exhibited as the groundwork of many English words.

The philological view admits that the value of the defunct languages as languages has declined, and that this loss has been made up by their value as means of philological drill. This is a curious position for a teacher of language to take. If merely drill in forms is wanted, it is easy to take a very small part of a language, or even to take the English language for this purpose. If it is literature and interpretation of the language that is wanted, that is one thing ; if it is drill in form that is wanted, that is another. Skill in one is attained at the sacrifice of training in the other.

3. Grammar is said to be a means of showing scholars the growth and elegance and force of an inflective language and universal grammar or philology is said to be by a dead language best learned. If this be present in the mind of the teacher constantly, it is at the sacrifice of reading and writing and literature ; and the teaching is seldom especially directed to these ends.

4. One contention is that the closest and most rigorous attention to translation, that is, to interpretation, inevitably secures all other purposes, good English, universal grammar and derivations. This is too absurd to be very confidently maintained. If it were correct, teachers never should have departed from it, and should never glory in anything else.

It is very inconsistent to keep up the study of Latin for one purpose and then claim for it all purposes. Latin is a dead language. If it be studied, it should be studied for the original though defunct use. This is the natural and easy course to follow and is defensible.

Excellence in teaching is generally measured by the power of accurate interpretation in the scholar. If the teacher succeeds here, he regards himself as a good teacher although none of the other ends enumerated are secured. This end of teaching is always expected and is found in the best teachers. When these accessory objects are made the main or even a partial justification there is an air of insincerity. Certainly a great deal of youthful study results in nothing. The teacher himself must be one of rare acquirements if he is to help his pupils in English style ; he must be a ripe scholar to help them in philology ; if he is to assist them in forming their literary tastes he must have acquirements which are seldom found.

If teachers prepare a boy for college examination they never think of English derivation or language. The end is to meet and overthrow a paper which conforms to the standards and mental peculiarities of a college professor. Why should educated teachers, men and women, strive for so meager and barren an end ?

It is justifiable to display the inconsistency of teachers and their arguments in favor of this pervasive study of the schools. It is not well or expedient to attempt so many different arguments at the same time. If they desire to teach English, the direct way is to arrange a course of English, allot a definite time to it and follow it with undivided attention during that time. If they wish to teach universal grammar or philology bring together all the illustrations from English and make them bear upon the subject. If the subjects which are supposed to be taught are worth anything they are far too serious to be imparted in passing allusion and sidetracked notices while a scholar is engaged in struggling with linguistic difficulties. Such small contributions as are made in such instruction can easily be dispensed with.

The alacrity with which the teachers enter into Latin without inquiry whether it can ever be turned to account has several causes. Many are intoxicated and absorbed by the study of Latin. It is to be suspected that apart from this consideration, Latin is by comparison easy to teach and easy to base examination upon.

Without doubt one reason that Latin, Greek, and Mathematics are so tenaciously retained is on account of the ease with which they can be worked as examination subjects. The work of the scholars can be constantly tested and accurately compared. But History, admitted on all hands to be important, does not yield such results to the ordinary examiner.

Moreover, there is a charm about this traditional subject, a charm coming from the fact that generation after generation learns the same thing. Fathers are interested to know that their boys are studying Latin though they themselves have forgotten all the Latin they ever learned.

The language called dead becomes the main study in a school of the nineteenth century. We have not now to deal with college instruction, though if that subject were before us, we would suggest that Latin, like Hebrew, should be relegated to the college course. There in a few years devoted to special study those who needed the language or wished to secure it for its intrinsic value could give time and attention to it. The advantages would be absolute because the student would have in mind what he was getting it for.

Admitting that all that has been said about Latin is true to the letter, that it assists us in our own language, that it exemplifies universal grammar, etc., it is only necessary to affirm that the same good ends may be attained in other ways. Latin is but one of several instruments for instructing us in language. The end is to be looked to as well as the means or instrument, and perhaps more, because the means or instruments are very various. Facility in English composition and in the use of the English language is of course a valuable end. The ability to express one's self forcibly and clearly in the English language is the highest attainment of scholarship, whether it is got through the study of Latin or through the study of English and English authors. It would seem, however, to a reasonable man that skill in English should be obtained in English itself, and to say the least Latin should be subsidiary to the English. It would follow that a boy who wished to attain English would study that as the primary subject and that Latin would be subsidiary. If then it were found that Latin was the best means of securing good English, it would be pursued with that in view. If it were found that English were attained by some other and perhaps less laborious a way that would be preferred.

Another inquiry was what superiority for purposes of study Latin had over a modern language. To this the invariable answer is that translation demands reflection and labor, and that the advantages consist in exercising the faculties upon the puzzle thus presented. This is not true of Latin alone. The same is true of any language and eminently true in interpreting our own language. The scholar would find difficulties and puzzles in Dante and Goethe. Without doubt a boy would obtain just as much advantage from Burke or Shakspear as from Thucydides or Vergil. The objection to this argument is that the teaching is very bad that brings about situations in which puzzles are set to exercise mental activity.

Greek. Greek has been omitted most frequently, and has been replaced by modern languages or by science. There is a growing feeling that Greek is not necessary to the professions, nor to general culture.

Modern Languages. Wherever modern languages have been introduced as substitutes for either Greek and Latin, they have been taught either as preparation for college, or purely as language studies, and not for the literary ends. Modern languages ought to be taught in connection with their respective literatures for at least a full term of four years.

A difficulty with modern languages is the character of the teachers. There are foreigners who teach well, but generally they fail both in teaching and in discipline. If this be too harsh a criticism, it may be said that they do not compare with our own countryman in their knowledge of English. These teachers are well enough for those who are voluntarily taking such a language, but as teachers in a compulsory course, or in a course where classes are large, their inferiority as managers is very apparent.

English Language. The valuable instrument of living language is taught through the medium of a dead language. It is usually admitted that facility in the use of the English language is a valuable acquisition, and that his own language assists the scholar to understand the thoughts of the past and the present so far as those thoughts are contained in his own language. It also enables him to enter into the emotions which are depicted and illustrated in literature, and to appreciate the judgments and feelings of others. In general, then, the study of English, especially in the forms of literature, makes him broad-minded.

Literature. Where Literature is given a chance, the instruction is often limited to a study of English forms or Biography rather than enlarged to a real study of Literature. The derivation, definitions, archaic words, synonyms, lives of the principal writers with their personal characteristics, their abodes, their eccentricities, and sometimes their vices are taught as Literature. Elaborate biographies of Scott, Thackeray, Fielding, Longfellow, and Hawthorne are learned. Lists of their works in chronological order are found in the text-books, and assigned for lessons. The several kinds of verse and their construction are a part and often the main part of the instruction. These are not Literature; they are merely the outworks of Literature. A scholar may have studied these and not exercised his faculties upon Literature at all. He may never have discerned the thoughts and never have been stirred by the sentiments of the writer. In all schools the instruction in Literature bears a small proportion to the related and auxiliary subjects.

History. In the reports of the State Board of Education years 1892–3, pages 390*–399*, it is noted that History has not received any adequate attention. It has not been made an important part of any high school education. Those who go to college must be prepared upon the outlines of Greek and Roman History. Those who finish their education in the high school certainly are not well grounded in the elements of History and have not received impulse toward the reading and study of History. Least of all have they been introduced to the methods and imbued with the habits of the study of History.

Some reasons for this are on the surface. The first and most important has already been mentioned in referring to other subjects. Greek and Roman History must be studied with college requirements in view. Intelligent teaching on the part of the teachers is well nigh impossible. The points to be learned are battles and murders with occasional references to legislation and biography. The list of Roman Emperors from Augustus to Trajan was glibly given in one class and Nero fiddling was the spectacular and impressive character of the whole line.

There is no study in which rigid adherence to text-books is more prominent. In no single case was History taught without a constant reference to a book in front of the teacher. The topics were those of the books and in some cases the lesson was recited verbatim. When one scholar had finished and the mark had been set down the word to "go on" was given, and "sufficient" was the signal to halt.

Text-books ought to be better or else the teachers ought to know how and what to teach. If the text-book recitations must be adhered to, and there seems to be no relief, then we must have some text-books which contain what is essential.

Trained teachers are not to be had and those who have trained themselves in the schools are over-worked. A teacher listening to History two periods in a day, Mathematics one period, Science one period, modern languages one period, and Latin one period, cannot be expected to plan original or interesting work. Such a teacher is not to be criticised for putting the book on the desk and exclaiming "go on."

The methods of teaching cannot be classified. It was usually claimed that the topical system was used. The topical system consisted in starting the recitation by giving out the head-lines. Of the classes heard, at least ¾ adhered to the text while they used the topics. There was sometimes an effort to interest the scholars by bringing in information and stories. These are not the essentials of History. They are interesting and the scholars enjoy them. They are like items in the newspaper, and have a charm for children just as births and marriages have a charm for persons who have reached an indefinite age. Children can profitably read stories, romance, fiction, or myth, but this is not the study of History.

In one class of twenty, there was a bright boy, evidently one of the youngest. Being called upon, he began a series of very interesting stories. The teacher allowed him to tell one or two and remarked that that was sufficient. It evidently was not sufficient for him nor for the class. Some others with timidity ventured a few statements and when all had quickly exhausted their supply, this boy's hand was still uplifted. "Well, Willie, now you may go on." He spoke very entertainingly for several minutes, reciting fact after fact without hesitation and with great zest. He had not finished when the hour closed. In too many instances, there is no single boy to relieve the dull level of the book.

Geography has not often been connected with History in the proper way. Maps of Greece and Rome are unfurled in many schools and important places are sometimes pointed out. The relation of Geography to History is not the subject of instruction.

EXAMINATIONS

In all of these schools there were examinations.

Examinations count for a definite part of standing. The value of these examination marks varies from $\frac{1}{10}$ to ½. Cramming for examinations is a part of a high school education. It must be so, because the boys and girls who enter college must pass examination. The custom is to obtain the entrance examination papers of colleges. The students are shoved through similar tests. Some of the instructors have been college examiners or tutors and have special reputation as successful crammers. Examining these college entrance papers they exhibit a certain similarity, taking several years together, so that the observant and skillful high school crammer can by the doctrine of chances calculate what kind of a team his candidates will contend with. He therefore prepares them by frequent and trying practice exercises for the game. It is the boy or girl against the college examiner; it is not education, it is the apotheosis of examination.

Without discussing the general question of examinations, they are manifestly in a flourishing condition. They constitute an essential part of the existing requirements of the schools. They are so because college preparation makes the current, and into the stream thus created are turned the other studies of the school. School authorities and teachers often deprecate them, but they continue to worship them. As the heathen feels toward his idol, they know he is ugly, but they feel he is great. It is wonderful that this instrument, so insufficient for all true objects of education, and all real training of the mind, should have a firm hold. Many teachers clearly perceive what best forms young minds and how subjects should be taught. They realize that examinations are not best, but they do not see the substitute.

In some schools attempt has been made to gloss over examinations by calling them tests, and occasionally to really substitute something for them. There is a serious effort to prevent instruction degenerating into mere preparation for examination. Endeavor is made to give requisite time to all subjects, so that the pupil can come to the end steadily and without worry and find by means of this study the fullness of the measure of his powers and character. There is endeavor to secure and thoroughly form his education, instead of bewildering and oppressing him by a mass of ill-assorted stuff hastily heaped together.

In too many schools the substantial and enduring is not what is aimed at. It is just one thing — entrance to a college.

Frequently written lessons were required. In most cases, however, an examination test was applied for the purpose of ascertaining whether the store of information was immediately available. If it was not, the scholar was dropped.

There is one feature of examinations that is, to say the least, peculiar. They are held to be bad or unnecessary until a child reaches the grammar grade at eleven or twelve. From this time until he reaches a professional school he may be tried by these means. Then he has been sufficiently tried and the examination life closes. The period of youth and early manhood are the times for these tests. Most, if not all, thus minded are certain that examinations are not a satisfactory test of the qualifications of teachers, but will stake upon an examination in algebra the question whether a child shall have an higher education or not, and will drop him if he fails.

The results of this constant examination are a disheartening want of faith on the part of teachers in all but the mercenary inducements to mental exertion. They do not look to themselves, but to the scholar or the system, for success or failure. When any branch is inadequately represented or cultivated, and an interest is to be aroused, it comes under the examination test. It is seldom by *good teaching* that stimulus and encouragement are sought. The *universal remedy is to make the examinations more rigid.*

Many hope and some believe that teaching and study are not always to be fettered and enslaved by the pressure and goad of impending examinations, but just now there is no mortuary record showing the extinction or even abatement of any of the illustrious horde. A reconstruction on the basis of frequent tests only means an enlargement of the same means with new, because more frequent, opportunities for activity and power. The examinations become countless, instead of occasional.

Teachers *can* render their instruction attractive without artificial stimulants. Children pass through the early stages of school training without these tests; they can successfully attain the ends of education at every stage without them.

V

Particular Schools

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Taking a small high school as a type, — the town has a large area with two manufacturing centers and a considerable agricultural population. There are two villages about three miles apart, where grammar grades, that is classes just below the high school classes, are organized. There are primary ungraded schools in other parts of the town.

The high school located in the larger of the two villages is a gradual growth from a district school. Beginning by the introduction of Algebra or Latin into the classes of the district school the higher school has finally become a full-fledged high school. Many other schools are now in this evolutionary process — as the table, page 255*, shows.

For a few years schools have been managed under the town system (see page 250*), and this school now consists of four highest grades of the town schools. To this school can come all children of the town who, in the opinion of the school visitors or of the principal of the high school, are qualified.

While children are said to be regularly promoted from the grammar grades, promotions depend upon a rigid examination set by the principal, who is also supervisor of the schools in his building. Candidates are promoted if they pass the special examinations which are set for entrance to the high school. Promotion, then, is a misnomer.

Scholars do not come up regularly on recommendation of teachers. Advance is determined by a searching examination set by a person outside of the school in which the preparatory years are passed. They are no more promoted than those who go to college from this school are promoted to college.

The result of the entrance examination depends upon the marking of the principal. His standard is all rules and operations in Arithmetic, all battles and dates of United States History, all Grammar, all map questions in Geography, and correct spelling. Grammar must be mastered in order to understand Latin, and Arithmetic should precede Algebra. In fine, one stage of education, viz., the elementary, must be mastered and finished in order to begin the next. It is understood that this is the business of the elementary schools and what any ordinary boy or girl at 12–14 years of age ought to be compelled to attain, and what is of paramount importance is the only preparation for a higher education.

There is no place in town for those who cannot pass under the preliminary yoke. A boy or girl who cannot "pass" has no farther chance for schooling, no place in this town to go to. He can "go back," *i. e.*, continue in the grammar department, but he must thrash the same straw until he can "pass."

The number promoted to the high school in the current year was ten boys and ten girls. This is about one in twenty of those who enter at the bottom in the primary schools.

The number in the school is:

First year — boys, 9; girls, 7.
Second year — boys, 6; girls, 9.
Third year — boys, 4; girls, 3.
Fourth year — boys, 2; girls, 2.
Whole number, 42.

The number diminishes from term to term and from year to year. The second class originally numberd 24, and has lost 9. In general, about one-third drop out by the end of the first year, and another third by the end of the second year. The loss is usually small at the end of the third year.

There are three teachers, one man and two women. The average number of scholars to each teacher is 14 or 15. All are college graduates. The principal is a man of seven or eight years' experience. One of the women has been teaching four years, and the other is fresh from college. The principal is paid a salary of $1,500; one of the teachers is paid $700, and the other $500.

Program. The school day begins at 8.30 and ends at 1.30, and the recitation periods are 45 minutes.

There are in the week 90 periods of recitation time, and in 85 of these periods there are recitations.

Of these 85 recitation periods 19 are given to Latin and 14 to Greek. Thus the dead languages occupy $\frac{33}{75}$ or 44 per cent. of the whole time.

There are in the week five recitations in Algebra and five in Geometry. In addition to these there are two in solid Geometry and one in Surveying. Mathematics occupies $\frac{13}{75}$ of the whole time.

There are four recitations in General History, one in Greek History, and one in Roman History; and History occupies $\frac{6}{75}$ of the recitation time.

Literature and English, including Rhetoric and Composition, are not separated, and occupy $\frac{11}{75}$ of the time.

There is one in a week period given to debate and one to elocution.

Science is represented by Astronomy and Physics, the two having seven periods in the week.

French and German occupy ten periods in the week.

Civil Government occupies four periods in the week.

The character of the school as pervaded by the defunct languages is distinctly manifest. The failure of the school to give adequate instruction in English or English Literature is also plain.

The plan of work is so arranged that three daily recitations are necessary to complete the course in four years. Thus in the classical course Latin, Algebra, and Rhetoric may be the course for a term. Rhetoric then drops out and Roman or Greek History enters. Latin never drops out, and Algebra always continues a year.

The teachers expect that one and one-half to two hours will be spent in the preparation of Latin and Algebra respectively. English and History lessons may be learned in one hour.

In a day there are five hours (300 minutes) and six periods of 45 minutes each. Three periods, or two hours and a quarter, are spent in recitation; 35 minutes are taken out for opening, intermission, and closing exercises; there remain two and one-quarter hours for study in school.

Inquiry of the scholars themselves in this and other schools puts the amount of time given to study by faithful students a little higher than the teachers' estimate. Probably the children overestimate the time they give to the lesson, while it is possible that the teachers underestimate it. One and one-half hours for the average Latin and Algebra lesson would not be too much, and some certainly must study twice that time. It follows that these scholars recite two and one-quarter hours, and many must study four and one-half hours.

To learn the assigned lessons then scholars must spend at least two and one-half hours in home study. Inquiry among teachers and scholars establishes the fact that instead of four and one-half hours being the time required for learning the lessons at least six hours are required, and four hours must be spent in home study.

Latin. Taking up the several subjects, we find in the first year 12 out of 16 — seven boys and five girls — study Latin. In the second year five boys and six girls — 11 out of 15. In the third year four boys and three girls — the whole class — are studying Latin. Of these two are going to college, and the others are taking what is called the English-Latin course. In the fourth year two girls are studying Latin.

Greek. There are in the second year four boys and three girls studying Greek. In the third year two girls and one fourth-year boy, and in the fourth year one girl, are studying Greek.

Out of the 42 scholars in this school 32 are occupied five days in the week with the dead languages. This is not surprising. The principal and the most experienced teacher give instruction in these languages. The whole force of the school, the influence of these experienced persons is in favor of these languages.

The class in Cicero was translating the Manilian Law in review. The instructor was enthusiastic. She stated that she enjoyed teaching Latin, but did not enjoy any other subject. She also regarded herself as qualified to teach that subject, and hoped at some time to obtain a position where she would teach nothing else.

Each scholar was called upon to translate a passage. These translations were fair renderings of the Latin, but were in most cases execrable English. No correction of English mistakes was made, but the niceties of Latin distinctions were elicited. There was little, perhaps, attention to the rendering into English. A few derivations were asked, and the distinction between *iste* and other pronouns was carefully brought out. (It is worthy of note that in four schools the value of *iste* was carefully drawn out.)

With text and lexicon before them this class wrote a translation of a portion of the Manilian Law. Four of these translations are given.

1. *Now with this desire men set out into the provinces, with these rights & conditions, they clearly ignore those who do not think that all ought to be given to one, As I was say in fact we see that Cn. Pompeii is great not with his own valor but even with foreign welfare, Wherefore be unwilling to doubt that you entrust all to one man, who through so many year one has been found whom the alleys rejoice that he has come to their own cities with an army.

But if you think this cause has been confirmed by authority, O Romans, the man of wars is the leader for you, of all the greatest things most dear, P. Servilius, of whom so great things have been carried on they give him command on land & sea, that when you deliberate concerning the war, the leader ought to be no one more dear to you, It is C. Curius, gifted with your greatest and best benefits.

2. Now, those who think the supreme power ought not to be given to one man, men know, forsooth with what desire, expense

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* Manilian Law, Chap. XXIII.

Nunc qua cupiditate homines in provincias, quibus jacturis et quibus condicionibus proficiscantur, ignorant videlicet isti, qui ad unum deferenda omnia esse non arbitrantur : quasi vero Cn. Pompeium non cum suis virtutibus tum etiam alienis vitiis magnum esse videamus. Quasi nolite dubitare quin huic uni credatis omnia, qui inter tot annos unus inventus sit quem socii in urbes suas cum exercitu venisse gaudeant.

Quod si auctoritatibus hanc causam, Quirites, confirmandam putatis, est vobis auctor vir bellorum omnium maximarumque rerum pentissimus, P. Servilius, cujus tantae res gestae terra marique existerunt ut cum de bello deliberetis auctor vobis gravior nemo esse debeat ; est C. Curio, summis vestris beneficiis maximisque rebus gestis summo ingenio et prudentia praeditus.

and on what terms, men set forth to those provinces. As if indeed we should see that Canius Pompey is a great man not only be cause of his own praiseworthy deed, but in comparison with the lives of others.

But if, fellow citizens, you think this case ought to be decided deliberate opinions, you have as a supporter a man thoroughly acquainted with all wars and the greatest exploits, Publius Servilius, (by name) whose exploits by land and sea are known to be so great that no one ought to doubt that you have a more influential supporter, when you consult in regard to this war; there is Caius Curio a man endowed by favors from you and very great exploits and with the greatest genius and

3. Now indeed those men who do not think that all power ought to be conferred upon one man are ignorant, with what cupidity, with what expenses and with what bargains, men depart in the provinces, As if indeed we did not see that cn. Pompeius was great not only on account of his positive virtues but also from a comparison with the vices of others. Wherefore do not hesitate to entrust all power upon this man alone who is the only man who has been found through these years whom the allies delight to have come into their cities with an army, But if, Romans, you think that the authority of responsible men must strengthen this case, you have as authority P. Servilius a man very experienced in all wars & very great matters whose deeds that have been performed on land and sea are so great ut when you deliberate about a war, no one ought to have more influence with you, you have as authority C. Curio a man enjoying your greatest gifts, a man that has accomplished great exploits endowed with the greatest natural ability & wisdom.

4. Now, with what eagerness, (men in the provinces,) with what expense and bargains) act, no doubt they are ignorant, who think that all things ought not to be entrusted to one man. As if we did not see that Cnaeus Pompey was great not only on account of his own good quality, but on account of the faults of others. Wherefore do not hesitate to entrust all things to this one man, who is the only man who (through so many years) has been found whom the allies rejoice to see come with an army into their cities.

But if you think this case has been proved, fellow-citizens, by the opinions of distinguished men, you have as authority, a man, of great experience in all wars and great affairs, Publius Servilius, whose exploits on land and sea are so great, that when you think of war, the opinion of no man ought to be of greater weight, with you. You have the authority of Gajus Curio, who, by his very great genius and prudence, has received very great favors from you, and the management of great affairs. You have the authority of Cnaeus Lentulus, in whom you all know.

The same teacher was occupied in teaching the beginners in Latin. A few declensions were written, but the main object of the teacher was to secure facility in turning English into Latin, that is ability to write Latin. This had been fairly attained in short sentences. (See College requirements.)

Mathematics. The classes in Algebra include all the scholars of the first year. Algebra is not optional, and every scholar must take it for a whole yeär.

Geometry is obligatory for a whole year, so that all in the school are studying Geometry the second year. In the third year two boys and one girl study Trigonometry and Solid Geometry for two terms.

Mathematics, then, occupies about two and one-half years of the whole course.

The instructor in Mâthematics was also the instructor in History. She was enthusiastic in Mathematics, but stated frankly that Literature and History were very disagreeable to her.

In Geometry the figures were drawn, theorems stated, and the formal demonstrations follow.

The teacher sat with index finger on the book, but the children did not have any book. There had not been any inventional or problem work.

The same teacher presided over Algebra. The lesson consisted of 12 examples in "simultaneous" equations. The class was bright and alert, several solving intricate puzzles with a good deal of shrewdness. There were some mistakes; these the teacher noted and corrected. The explanation consisted in telling how to unravel the puzzles. The teacher did not claim that the exercise was in itself useful, except as it "sharpened their wits."

**English.* There is an exercise in English composition once a week during the year, although no place appears for it upon the program. It was stated that the scholars are sufficiently instructed in composition in the grammar school. The examples of English composition do not show that there had been any thorough instruction in English. Rhetoric has four recitations a week for two terms.

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* Under English are included English Grammar, Rhetoric, and Composition.

The class in Rhetoric was following the book without any excursions. The outline was given, and nothing else was required. The teacher remarked that she could not get anything out of it, that she did not like English, and that she hoped that the time would come when she would never see anything but Mathematics. Such a consummation is devoutly to be hoped for.

Literature. In the second year there are two boys and five girls reading Evangeline. This study of Literature occupies a year, four recitations a week. In the junior and senior classes the "college requirements" are read. The entering class also read outside of school at the suggestion of the teacher, but there is no course and no evidence that it is regarded as important. This is called "culture reading." The scholars seek books from the library, and as reward of good conduct or good lessons are allowed to read in the school hours. No test or examination or even supervision of this work is manifest.

The recitation consisted in reading Evangeline. The class had just begun the book and appeared to have genuine interest in the poem. The questions and suggestions were all upon synonyms, derivations, definitions, and meter. There was some evidence that the teacher was not really prepared.

Science. In the third year five boys are studying Physics. These boys will have Chemistry in the senior year if they remain so long. In the current year there is no Chemistry because a teacher could not be spared to give the instruction. Physics comes every other year and Chemistry every other year, and thus the scientific course is kept up. The scientific course, practically consisting of Physics and Chemistry, can be studied instead of Greek for two years. Geology is studied 12 weeks, and the class consists of two boys and one girl. It is stated that there is laboratory practice three days in a week. There had not been any recent practice, because there had not been time.

The recitation in Science was a farce. The subject was electricity, and the scholars followed the book precisely. There was no apparatus and no illustration. The teacher had the book in front of her and followed it closely. The difference between the teacher and the student was that the student had no book and had learned the lesson. There was on the wall a picture of Agassiz, and the face seemed to assume a look of dire distress. The telegraph and telephone were both described in the words of the book *verbatim et literatim.* The impression received was that the teacher did not understand the subject.

A small portion of natural science has been introduced into this and like schools, but the other requirements have not been diminished. Consequently scholars are subjected to a greater crush of subjects, and they must either neglect Latin or neglect Science. From Science perfunctorily taught they derive very little benefit. Science is a side show, with Latin and Mathematics as the main exhibition.

Modern Languages. Those wishing to study modern languages have a choice between French and German. There are two girls and four boys studying French in the third year. There is no class in German and no other class in French. The instruction in French is given by the principal, and the exercises consist in reading a play at sight. The translation was given with some facility, and the pronunciation seemed to be fair. The play was one required for college entrance examination, and the instruction had college in view.

History. History appears in the third year, and is accorded four recitations a week. In the class are two boys and two girls. They were "going over" General History, including the causes of the civil war in England and the age of Louis XIV. In another class sufficient Greek and Roman History are "gone over" in one recitation a week during a year to satisfy college requirements.

The History was conducted by the teacher who conducted Mathematics and Science. She had the book before her, and the children stated with verbal accuracy the text. In review the details of the civil war in England constituted the staple of the recitation. The scholars had topics from which they recited. These topics had been selected from the book, and the recitation was a verbal reproduction of the book. There was no interest in this study. Those who had recited showed great relief when they sat down. There was some very good summary work, and it was an excellent memory exercise. Reading outside of the book did not appear.

Marks. A marking system by letters A, B, C, etc., prevails. This system admits of as many ranks as there are letters from A to E, and is elastic enough. Under the direction of the principal the system of marking and ranking which prevails in the high school is conferred upon the two highest classes of the grammar school. Below these classes there is no marking system, but the teachers determine rank upon their impression of the scholar's work and ability. In fine, in the lowest classes ability is decisive, and in the higher classes marks are decisive.

There is one examination a term in the high school. This examination counts two-fifths of the whole scholarship standing.

Every recitation is marked by the teacher in a book, and the average of these recitation marks counts three-fifths. The pass mark is 75.

The aim of this marking system is to "keep the children to their work," to have them understand that they cannot be "slip shod," "to secure study," etc., etc. It is found that many fail and fall out. Algebra is most fatal; out of the 24 who entered six had fallen, but two were trying to hang on. The purpose is to keep the standard high, to secure good scholarship, and those who cannot be brought up by marks must go away. For these, again, there is no opportunity for farther study in the town.

There is also marking for "discipline," meaning thereby deportment, and under the plan, which all understand, deportment counts one-third. That is, the daily recitation marks and examination marks when combined on the basis above stated ($\frac{2}{5} + \frac{3}{5}$) count two, and deportment counts one. Under this deportment marking, for certain offenses, two is deducted from one hundred. For improper communication any deduction which the judgment of the teacher regards as adequate to the offense can be made. Thus a deportment subtraction from 100 results in some cases in such a low standing that the scholar can be removed from school. A similar system prevails in other schools. Sometimes the marks are called "checks" and the checks are clearly graduated to the offense so that a scholar knows how many he will receive for any usual violation of rules. These checks stand until the end of the term when a definite number is erased, and the standing is raised.

The object of this deportment marking is not very clear in the minds of the teachers. It is based upon the mischievous or depraved traits said to be inevitable in boys and girls. The system is not lauded, but deplored; it must exist just as criminal courts and prisons exist, to warn and correct the wicked.

The responses on marking are always enumerative. There is marking for order, for deportment, for restraint, for character, for the encouragement of the good, for the discouragement of the bad, for scholarship, for teacher's convenience, for parents' information, for scholar's rank, for emulation, for stimulation. The principal thought that the kindergarten children could not be thus marked, and he was quite sure that marks for discipline were not necessary for children of eight or nine years of age, although some might be favorably influenced by them. He admitted that the best system in lower schools was "securing interest," but when tasks were set there must be a workable way to secure competition and to hold scholars to the line. He was certain that in high schools and colleges such a system was necessary. He did not regard it as necessary in a professional school.

The principal and teachers are all interested in the scholars and eager to influence them to honorable and conscientious conduct.

The school is in good order, and there seem to be friendly relations between teachers and pupils. In other schools where a similar system prevails the relation between the scholars and teachers takes the form of ill-disguised hostility. In this school the teachers evidently have secured the good will, and perhaps the affection, of the scholars.

A card containing on one side information for parents is sent once a term.

TO THE PARENTS

1. Rank is based upon daily recitations and the result of examinations reckoned in the ratio of *three* to *two*. The latter may be written or oral at the discretion of teachers. Pupils *unavoidably* absent from examinations will be allowed to take special ones, provided satisfactory written or verbal explanation is received from the parent or guardian. *Unnecessary* absence from an examination will be treated as a failure to pass it, and will be marked zero.

2. Degree of excellence is indicated as follows: 60 to 70, E; 70 to 80, D; 80 to 90, C; 90 to 100, B; 100, A.

3. An average scholarship of 75 in *all* the studies of the course, and of 60 in each study is required to entitle a pupil to promotion or graduation. Failure to attain the minimum standard almost invariably indicates a lack of fair daily application. In such rare cases in which poor health seems to preclude such attainment, a *seasonable* conference of parents with teachers will lead to proper action.

4. The proper preparation of lessons requires that some of them be studied out of school.

5. Reports will be sent by pupils to parents each term. Parents are invited to examine them carefully, sign them, and return them promptly to the principal. They are also invited, when reports continue unsatisfactory, to confer with the teachers.

REPORT CARD
OF
M...
Course. ....*Class.*

	HALF DAYS				HIGHEST MARK — A												
	Present	Absent	Tardy	Dism.						Spell.	Dec. and Comp.	Attendance	Scholarship	Deportment	Gen. Average	Class Rank	No. in Class
First Term																	
Second Term																	
Third Term																	
Year																	

The graduating class of the year was eleven. All of these were girls. Six were preparing to be teachers, one had entered college, and four were at home.

II

Another and larger school is situated in a city. There is a fully equipped and pleasant building. The High School is managed by a town high school committee (see page 249*) and is independent of the elementary schools.

Admission of Scholars. Scholars are said to be admitted on certificate from the grammar school principals, but those who come from other schools or from out of town must be examined. In fact, questions are prepared by the superintendent and submitted to the advanced or highest classes in the grammar schools. The papers are read by the superintendent and high school teachers. Upon the result of this examination entrance depends. Those who enter from grammar schools are said to be regularly admitted, but they are really admitted upon examination by an outsider. The teachers do not determine fitness to enter the school.

The standard of admission is 65.

The number admitted under this plan in one year was 51 boys and 55 girls.

The number of teachers in this school is 11, of whom three are men and eight are women.

The number of scholars in this school was as follows:

First year — 54 boys, 60 girls.
Second year — 44 boys, 44 girls.
Third year — 21 boys, 29 girls.
Fourth year — 21 boys, 12 girls.

In the year 1895 eight boys and one girl went to college.

Hours of School. The hours of school are from 8.30 to 1. The tendency in all schools is to adopt these hours. This school day has secured a footing, and the only reason given is that teachers have more time out of school. This is invariably the answer to the question why such hours are favored.

Scholars are generally in favor of these hours. They have more time for study, but generally the afternoon is occupied with whatever is attractive at the moment. In many homes there is no place for study, and the requirements of study are not thought of. The result is that the afternoon, and sometimes the evening, cannot be devoted to study.

If in a school day of five hours three periods be given to recitation, there remain three periods for study. Deducting 30 minutes for recess there are 135 minutes of recitation and 135 minutes of study. If the information on the subject of study be correct, the amount of time required for the preparation of each lesson is not less than one and one-half hours. It follows that most of the study must be done out of school.

So far as the scholars are concerned there is no good reason for such hours; on the contrary, every reason is against them.

Program. There are 22½ hours in the school week. There are six recitation periods in a day, varying from 36 to 45 minutes in length, and the nine regular teachers conduct 47 recitations in a day. This would mean 235 recitations in a week, but there are all told about 225.

Of the studies, Latin leads with 11 recitations a day, and not any omissions during the week. Greek follows with eight recitations in a day and no omissions. There are, therefore, 95 recitations a week in the defunct languages. Algebra has 25 recitations in the week and no omissions. To Chemistry and Physics are given 18 recitations in the week. To English Literature, including Rhetoric, are given six recitations in the week. It will not be denied that this school is organized on a classical basis.

Government. This school is remarkable for its elaborate marking system. The standard or scale is 100. Promotions are made on a mark of 90, but a scholar who attains 80 in any subject may raise his average by another study. The marks are given by the teachers at the time of recitation.

One teacher had a pack or set of cards with the names of all the pupils on them. These cards were shuffled and the pupils called. A question or two was asked, an estimate made; this estimate entered, and then the card went to the bottom.

In response to inquiries about the effect of this it was stated that there must be some record or report upon which rank or promotion can rest. No similar system prevailed below the high school. All of the teachers were decided in the opinion that it was necessary. The effect upon the scholars as they recited was various. Some were anxious and worried, and some evidently did not care. The system was well understood and complete, and whatever influence such a system could have for good or ill was here exerted.

There is also a system of marking for deportment. This system consists in deductions from 100 for misdemeanors. Certain noises are worth two marks. Certain other noises are worth five marks, and so on in the discretion of the teacher. Distinct impudence might be worth 10 or 15 marks. The marks for deportment had for years been reckoned with the marks for scholarship to determine general rank. The school visitors had abolished this valuation of deportment marks, but the teachers of the school had petitioned for its re-instatement. The result of excluding deportment marks in the general rank had been a distinct increase in the difficulty of managing the school. As it was expressed by one of the teachers, the prick of the pencil kept the unruly in good position — a definite reminder of the goad used in the stock yards to keep the unruly cattle in line. The conduct of the better part of the school was not affected by deportment marks, but the conduct of the worst part of the school was affected by marks, and the absence of marks gave them license.

It is very difficult to characterize the tone of this school. The order depended upon the individual teachers. Some appeared to be thoroughly in control, while others were evidently at the mercy of the unruly, mischievous, and vicious. The influence of some scholars seemed to be extremely pernicious. In one room a boy came in with a large placard on his back. He was late, and as he came in the class shouted "Too late." Several boys were chewing gum, and invariably there was a snicker whenever a boy failed or made an impertinent answer. There was much evidence that the pricking of the pencil had not resulted in pricking the conscience. In fine, under this marking system the tone of some classes seemed to be low, and there was evidently no high and scholarly feeling keeping the students in healthy and generous touch with the instructors.

As a part of this system a weekly report was sent home containing scholarship, deportment, and rank. This card is like many others and presents no special features. Recitations count two-thirds and examinations one-third. Some studies are not counted in making up the record. Among these is English Literature.

Under this marking system in one year 22 were marked out. They fell below 90 and were obliterated.

In another class 18 were similarly dropped, but three came back. The alleged result of this system is "to weed out the dull and lazy." One-third of the class proved dull or lazy. The dull rather than the lazy appeared to have been eliminated. The scholar who is slow and plodding, as well as the scholar whose interest must be aroused, is soon side-tracked and left. The pencil is most fatal in Algebra, and Latin is second.

English. The English as planned by the principal includes not only Literature and Rhetoric but History. The reason for including History is that History is taught in English.

In the first year the "foundations of Literature" are taught for one term, three recitations in one week and two in another alternating. This is practically all the English instruction in the course. In a recitation in this subject the teacher had a book in front of her, and the words therein were enunciated by the scholars *verbatim et literatim.* It was seriously asserted that Rhetoric, Composition, and Grammar were invariably taught in connection with every subject, and that Latin, Greek, Science, and German contributed to the knowledge of the mother tongue.

"Every study is composition." Twice a week in the second year there were "literature readings," and essays were required. One scholar had written two essays in the year. The readings were well selected, and doubtless some good was derived as the teacher was a very good reader. The children sat contentedly and listened and apparently enjoyed the reading. There was no questioning or attempt to bring the children's mind to the subject, except as the rendering was impressive. All the scholars in the second year were favored with these readings. In the fourth year the English Literature was taught, for college purposes, twice a week. In this course were four boys and one girl.

In one of these reading classes the scholars were asked what particular book they had selected to write about. Three in the class of 26 had selected a book, although they had been requested three weeks before to select a book.

Science. Calling Physiology as usually taught Science, one term is spent in going over a book. This book contains very many remarkable scientific "facts." Another term was spent in Physical Geography. All take these branches twice a week in the first year. In the second year Physics is prescribed for one term for those in the classical-scientific course. In the third year Chemistry is similarly prescribed. There were 33 boys and 21 girls studying Physics, and seven girls and 15 boys studying Chemistry. In the senior year Astronomy and Geology are sometimes given to those not going to college. Classes in these subjects are combined, and at the time of the visit there were 18 boys and 13 girls from two classes studying Astronomy.

The instruction in Physics and Chemistry was formal and unscientific. Definitions were first learned and rigidly adhered to, but no illustrations or experiments were permitted except as the book introduced them. The teacher was thoroughly posted on these definitions. She did not have a book, and did not need one. There was no instruction, but the lessons were recited without variation from the order or words of the book. Two visits to the same class proved that no excursions outside the book were allowed.

History. In the first year English History is taken as an optional by all not in the classical course. In the second and third years there is no History, and in the fourth year General History occupies one term. There were in this senior class in History eight girls and 12 boys.

In response to inquiries concerning the propriety of having more History the answer was that the scholars got their History incidentally. "Every lesson is a History lesson." One lesson in English History certainly deserves a place in History. The teacher sat with the book and map in front of her, and began by saying: "Did we have England, or China, or Egypt, yesterday?" "Where is the lesson?" She frequently asked three questions before she allowed a child to answer. For instance, "What is the Irish question?" "What were the difficulties?" and "What is meant?"

In response to an inquiry, "What is an eviction?" the class was informed that it was "Puttin 'em out."

Mathematics. All must take Algebra the first year and Geometry the second year. In the third year Trigonometry and Advanced Geometry are permitted. There were four boys and two girls studying Trigonometry.

The exercise in Algebra consisted in giving out examples and hearing definitions. There was great difference in ability to work examples. Evidently those who failed in Algebra were educational outcasts and could not proceed, no matter what course they pursued, nor what their training thereafter was to be, this branch being an exception to the "averaging up" rule.

In response to the inquiry as to the use of this subject the usual answer about discipline, training, etc., was given. One teacher admitted that she could not teach it unless the colleges required it, because "some children hated it so."

The instruction consisted in telling the class, "You will find the examples on page 30." One teacher looked at his watch four times. On the whitened walls where there was no blackboard were displayed not algebraic symbols, but the fantastic symbols of disgusted but still active brains. Inquiry as to how much time scholars spent upon the examples in Algebra showed that none worked less than one and one-half hours, and some thought that two and three hours were occupied in preparing the lessons.

Latin. The classes in Latin pursue the usual classical course. The number in the first year was 80, in the second year 28, in the third year 28, and in the fourth year 10.

One class was learning how to scan the first six lines of the first book of Virgil's Æneid. The teacher was teaching it because it was required for "college examinations."

Greek. There were six boys and four girls in the first or beginning class. In the second year (third school year) there were four boys and two girls, and in the third year two boys and one girl.

The instruction presented no unusual features.

Modern Languages. French and German were taught. In the third year those who have chosen the language course can continue German, which they begin in the second year, or take French. Those in the classical course can begin either German or French. There were in the second year 26 boys and 26 girls taking German. In the third year there were 12 boys and 23 girls studying German, and five boys and 12 girls studying French. In the fourth year there were 11 boys and five girls studying German, and nine boys and seven girls studying French.

General. The proportion of time given to the classics is not so large as in the former school, but $\frac{95}{225}$ or 42 per cent. of the whole time is given to Latin and Greek. This determines the character of the school. The teacher of longest experience and best equipment was the teacher of Latin. One teacher had been brought to the school especially because he had a reputation for successfully teaching Latin and Greek. The classes in Latin were taught more effectively than any others.

VI

Reconstruction of Course of Study

In the primary schools there has been and is manifest progress. The Normal Schools are supplying trained teachers. The demand for trained teachers is greater, the teachers as a body are more competent, and the methods are more intelligent.

High schools have not become in any true sense an organic part of the public school system. They are organized under the State law, but there is very little connection between them and the schools immediately below them.

They have not been changed by the schools below them. Their faces are set toward the universities and not toward the common schools. They are open to the direct influence of the universities and yield slowly and generally not at all to the common schools. The theory is, schools should be regulated from the top.

The result is that the quality of the education and the methods of instruction have not changed. Twenty-five years ago they were fitting schools for college, dominated by college requirements. To-day they are regulated by the same requirements. The methods of teaching are those which prevailed twenty-five years ago. There have been some changes, but these changes have been based upon the intelligence of individual teachers and not upon any general notion that change is desirable.

Most high school teachers believe there is nothing valuable outside of the high schools and the institutions above them.

If we undertake to reconstruct the course of study and bring these schools to usefulness we must first reject the proposition that certain studies are pure high school studies. Children learn a language, either dead or living, at an early age. If children are to speak or write a language they should begin at ten or earlier. If they expect to secure entrance to the literature of a language the earlier they begin the better. If all the advantages claimed for Latin and Greek belong to them children should begin at an early age to reap those advantages. The reconstruction of the course should be based upon the receptivity of the children and not upon the notion that any subject or subjects are high school property.

As the compulsory law sets 14 as the limit of attendance there are many who will leave school at that age, no matter what education is furnished. An investigation (see report 1896) shows that those over 14 constitute only 7 per cent. of the total attendance in schools, while those of 13 years of age alone make up 11 per cent. of the whole attendance. Those under 14 then constitute a single class who have needs peculiar to themselves. This class is able to go far beyond what the elementary schools now offer. Children can by the time they are 12 be well grounded in the elements of all necessary subjects. From 12 to 14, they can be occupied with more advanced stages of the elementary subjects, including History, Civil Government, Literature, Geometry, commercial geography, commercial forms and practices, and Science. All this would presuppose a good acquaintance with Arithmetic and a fair training in expression, both oral and written.

We need not now consider at length this class, but go on to the class consisting of those who can remain during the full high school course, or until they are eighteen or nineteen, but are not collegiate candidates. This class will be greatly enlarged, if the subjects taught and the teaching have in view an education complete in itself and terminating with school life. For this class there may be an education not extensive in its range but tending to technical and vocationary ends It would consist of Literature, History, including Civil Government, Modern languages, and particularly a thorough and useful course in Science. To these might be added Mathematics, including Algebra and Geometry, as optionals.

The courses provided for such students should not be the irregular or neglected side of the school into which those of inferior diligence or ability flee for refuge. The scholars pursuing such courses should not be regarded as receiving a peculiar or inferior education.

As high schools are now constituted, the interest of the best teachers centers in the classical courses. So long as this is true and the main object of a high school education is entrance to a university, there is little likelihood of real success in the maintenance of different and rival courses in the same school.

Probably schools would accept a separation of courses if they were not weighted with the burden of those colleges which still compel all who enter to pass beneath the yoke of Rome and Greece, fearing that if this is not done these two illustrious languages will rapidly decline. Existing high schools can never be relieved from thralldom until relief is obtained from above. The thing that stands to reason is to place the modern and ancient studies on exactly the same footing, not only so far as high schools are concerned, but so far as the colleges are concerned. That would give a fair field and no favor. If anybody be afraid of this, he has no faith in the merits of his own case.

There are many schools that claim that the bifurcation has been effected, but this claim is put to flight by their practice. The defunct languages are *first* provided for. They have a four years' trial, while modern studies are the irregular, uncertain, and one side studies.

The following illustrates the "bifurcation" in one school:

	CLASSICAL COURSE	SCIENTIFIC COURSE	ENGLISH COURSE	COMMERCIAL COURSE
FIRST YEAR.	*Latin:* Harkness' Easy Latin Method — entire. Collar's Gate to Cæsar — entire. *Algebra:* Wells' Higher Algebra through Quadratics. *English:* Lockwood's Lessons, chapters I, VIII, and IX entire; and parts of IV, V, VI, and VII. *Books read:* Evangeline, Short Poems from Longfellow, Snow Bound, Julius Cæsar, Lars, Tales of the White Hills, Selections from Irving, Merchant of Venice, Talisman, Ivanhoe, Lady of the Lake, Birds and Bees. *Supplementary reading:* Wonder Books I and II, Kingsley's Greek Heroes, Knickerbocker History, Bracebridge Hall, many of the Alhambra legends. *History:* Myer's Greek History, Allen's Roman History. Composition Exercises—once a week.	Same as Classical Course.	Same as Classical Course.	*German:* Whitney's Brief German Grammar, Grimm's Marchen, Brandt's Reader—one half, Sight Reading. Prose Composition founded on reading. *Algebra:* Same as Classical Course. *Bookkeeping*, including *Commercial Arithmetic* and transactions in *Commercial Paper:* 3 recitations a week. *Penmanship:* 2 recitations a week. *English:* Same as Classical Course.

Free-hand drawing, including perspective, light and shade composition, and design (mediums; pencil, pen and ink, charcoal and water color), required in English Course and optional in others. Mechanical drawing, including elements of machine and building construction, optional in all courses. Music — once a week, in the Senior Class.

Entire Separation of Classical and Non-Classical Schools.— The proper adjustment is the complete separation of the college classical requirements and modern education.

As has been stated, the combination of these different courses in the same school is exposed to the danger of forcing all into a curriculum either exclusively classical or based on Latin, or of losing thoroughness by striving to insert too many subjects and to accommodate all. Even if the two sides be clearly separated in the same school there is still the tendency to run all the scholars into the classical course or to give them so meagre a substitute that they can not profitably remain.

In a small town, the non-collegiate students will form a considerable school, sufficient to warrant generous support and good teaching, but the difficulties of combining the classical and non-classical courses are insurmountable. There is the superstition that non-classical is less regular than classical education, and behind and overshadowing all obstacles is the economical one that the cost of an able force of teachers necessary to a high standard in both courses exhausts any resources except those of the largest communities.

It is hopeless, therefore, to expect to train students in mediæval courses and at the same time maintain a thorough modern course. It is the impossible endeavor to spread the benefit of able teaching over a few collegiate candidates as well as over that most important class of scholars who must stop at the end of two or three years or most complete their education with the high school.

Latin and Greek as now taught in the four years of a high school course are superficial studies, and ought to be discouraged. The breach between the classics and an English education should be clean and clear. If there be those who can take the road to college, we would not discourage them, because a college education ought not to be discouraged, but there should be provision made in existing, well-ordered, well-equipped classical institutions for all in the state who wish to take the classical course.

We might well ask why a modern education does not deserve admission to the university, why the attempt to render ancient and modern subjects of equal value should be so strenuously resisted, and why the two should not be crowned with equal distinction. The effect of putting the modern on equal footing with the ancient would be not only to greatly stimulate and improve the high schools but to encourage many of the best students to take college education. We may imagine or dream of the time when a four-years course in English Literature shall be freely accepted as one of the courses sufficient to entitle a student to entrance to college ; when modern languages shall be a second and science a third sufficient course.

In constructing a non-collegiate course we can secure by means of English what is now claimed to be accomplished by Latin. There is beauty and strength in English Literature. It has all the power to cultivate and refine that was ever claimed for any classical language.

This study of Literature should be distinguished from Grammar. Grammar can wait, and the antiquarian history of our language can be omitted altogether. The stress should be laid on the use of our language in writing and in speech. Children should be so saturated with good literature that they will use their own tongue more freely, more successfully, and more precisely, but above all will enjoy their own language when it is nobly used by great authors. The purpose is not to find material with which to illustrate grammar, but the object is to kindle in scholars individual study, to make them feel the force and beauty of which the English Language is capable, to show them how to use it so as to be influential with others, and to refine and elevate their taste. Thus taught it is an abiding possession. The scholar who cannot return to his Vergil and Homer, because he has forgotten the language in which they are written, will read Longfellow, Shakespeare, and Macaulay all his life.

Teachers are anxious to preserve Latin. Perhaps it is impossible to find one who does not claim that if a language is to be learned, Latin is the one to be preferred. In proportion to the success or knowledge of the subject is the emphasis of preference. Generally such teachers are able to teach Latin better than anything else, and they often unconsciously ascribe to the subject a success which is undoubtedly due to their better acquaintance with it. As all things in school must be done by and through the teachers, it is necessary before reforming the school to reform them. As Latin is really the only subject now taught with thoroughness, we must secure, at once, teachers who can teach English, History, and Literature as well as Latin is now taught. In fine, the only way to isolate Latin is to bring in teachers who can teach English. To teach English is a far more rare and difficult accomplishment than to teach Latin. Where there is one who can teach Shakespeare, there are ten who can very creditably carry scholars on the road to college through Cæsar and Vergil, whether regard be had to the language itself, or to the subject matter.

The claims of *modern languages* in such a course ought not to be overlooked. There is as much training in a living as in a dead language for those who have a short time to bestow on the subject. Moreover, a living language has a chance of being used. It may be valuable commercially, and certainly it will open up a field of literature which cannot be found in any of the defunct languages.

Science in such a course would take the second, if not the first place. To those who now frequent our high schools, little opportunity is afforded for a useful education in any branch of Science. It is generally opposed by the teachers who have little acquaintance with it. It is always opposed by those who do not want the present curriculum displaced, and by those who adhere without shadow of turning to Latin, Greek, and Mathematics. Where it is efficiently taught, it is always popular, and there is full recognition of its benefits.

This subject suffers as much from indifferent teaching as from absolute exclusion. Good teaching requires that the instructor should be energetic and apt. He must know the use of apparatus and have dexterity in its manipulation. Often it is relegated to a novice, who, from lack of experience and perhaps knowledge, must "get up" the lessons. The teaching in such cases dwindles to hearing the book, and is lifeless and useless. The most profitable branches are Chemistry and Physics, inasmuch as they are the common platform for all the rest. Certainly, no child should start in life without elementary knowledge of science, and there is opportunity here to consult individual aptitudes.

In constructing courses of study we should not neglect the application of science to industrial arts. Such courses look to the business of life and would prove highly profitable and useful in manufacturing towns.

The following is suggested as the basis of a course of study:

1. *English.* The course depends upon the training in the elementary schools, but would include Composition and Rhetoric, and occupy three or four years.

2. *English Literature.* Side by side with this and perhaps as a part of it would stand a course in English Literature.

In a four years' course good teaching would secure a good English education. The selection of books could be left to the judgment of a body of teachers. We know what the result of such a course would be and it is the end which we are seeking.

3. *History.* This should occupy four years. The lessons of History, particularly as they are connected with the activities of government, are the best preparation for the duties of citizenship.

4. *Science.* This should occupy four years. The details of the course could be left to a body of teachers.

5. *Modern Language.* (Optional.) This course should occupy four years. Modern languages, French, German, and Italian, are ample for purposes of interpretation and of comparison with our own language.

6. *Mathematics.* Optional except so far as necessary for Science.

By courses constructed upon these foundations a scholar will be so instructed in English as to have the culture which Latin or Greek are supposed to furnish. Modern languages will furnish the language training outside of his vernacular which the American child needs. Science duly taught will so open his eyes to the modern world that he will appreciate the age in which he lives. This would not be an insufficient introduction to the business of life. It would not be an unworthy introduction to a university education.

VII

Extension of Higher Education

The State is dotted with the beginnings of education. There are few places where the accommodation is not equal to the needs of the school population. Wherever the population is rapidly increasing and there is lack of school accommodations, local managers are active in providing means of overtaking the deficiency. Swiftly as the population grows, the endeavor to provide schools has practically kept up with the growth.

Doubtless in many places the schools are too large for the best education of the children. They number from 50 to 70, and these numbers are found most frequently where they ought not to be found at all,— where there are little children. It is encouraging, however, to see that this crowding is known to be wrong, and is always excused. The rapid increase of population and the cost of new buildings, causing heavy taxation, are always the excuse. The fact that 40 and 30 are recognized as enough for one teacher to teach and manage shows that public sentiment is correct.

It is noteworthy that good buildings and appliances and all material improvements precede by many years improvements in methods of administration and in the teaching itself.

Fifty-nine towns with a population of 596,150 have high schools open without charge to the children of the town.

In one hundred and nine towns having 210,173 there are no high schools. [See page 244.]

Reference to the map, page 247, will show the relative situation of the towns in which there is no free public high school.

There are high schools enough for all the children of the State, but these high schools are so located that they are not available to supply the demand for high school education. There are large areas where is no high school, and it is plain that there are many children to whom the privileges of a high school are denied. There is then a distinction between the children of the towns based upon locality.

In many towns a high school cannot be organized. The population is small, and there are few children to attend. Possibly one per cent. of the enumerated children in these towns would, if opportunity were proffered, attend a high school for two or more years.

The expense of establishing schools would be greater than small towns could bear. At a low estimate, $600 would be required for each school of twenty-five scholars.

Such high schools are not equal in equipment to the high schools of the larger towns.

If a good teacher be secured, the instruction will be just as good and the advancement just as rapid. But they are subject to frequent changes and cannot hope to pursue a steady policy to a particular end. They must be weak and subject to all the disadvantages of weakness.

In seventy-five of these towns it would be quite impossible to maintain a good high school.

The district schools cannot teach high school branches. Occasionally Algebra and Latin are introduced, but always to the neglect of more important studies and to the neglect of the young children. The returns of several years ago (Report of 1884, pages 48, 49) show that high school subjects in the district schools are not popular.

In a few of the existing schools, the accommodations are just sufficient for the local attendance. These schools cannot be available for outside students. Most high schools however are open upon a reasonable tuition fee to those who come from outside. This tuition fee does not often fall below $40 a year, which will pay for the actual cost of providing instruction and accommodations for one scholar. With few exceptions the existing schools will be willing to receive students from outside at a reasonable rate. If there were a demand, other schools would open.

In the deficient towns the expense of attendance away from home deters those who desire high school education. The expense includes not only tuition but also transportation if school be reached from home daily. If residence at the school is necessary, there is the expense of living. These expenses are far too large for many families, and the existing conditions prevent children in the deficient towns from obtaining more than the district school affords.

Ought the State to assist these deficient towns?

If tuition fees dependent upon regular attendance and good scholarship could be paid, without question many would be found seeking higher education. The cost to the State would be about $20,000 annually, if every possible scholar attended.

A law of which the following is a suggestion would accomplish this purpose.

SECTION 1. The selectmen of any town in which a high school is not maintained shall pay the tuition fee of any child who resides with his parent or guardian in said town; and who with the written consent of the school visitors or town school committee of said town attends a high school in another town, provided that the high school so attended shall be approved by the state board of education; and, provided, also, said tuition fee shall not exceed fifty dollars for a school year.

SEC. 2. Any town (the grand list of which does not exceed five hundred thousand dollars) shall receive from the treasurer of the state an amount equal to the aggregate of the sums which have been actually paid by the town for tuition fees under the provisions of Section 1.

SEC. 3. The number and names of the children and the high schools which they have attended shall be certified under oath by the acting school visitor of the town to the state board of education. The comptroller shall, on application of said board, draw an order on the treasurer in favor of the town for the amount provided in Section 2 of this act.

There are many sound arguments in favor of such legislation. The children of the smaller towns are placed on equality with the children of the larger towns. It is anomalous and unfortunate that children born and reared in these towns should be deprived of the privileges which are open to children from all the world. A foreigner coming here to make his home, by stopping in the cities and larger towns, obtains every educational advantage for his children. The elementary schools and the high schools are wide open. While we would not close these schools to the foreigner, we would open them to the native born.

The counter argument is that high school education should be supplied at the expense of the parents who desire it. This contention finally means that only paying children should be educated anywhere. It is tenable ground and if strictly adhered to might result in getting a better education for a few. This principle has been entirely neglected in constructing our system of common schools, and it is too late now to attempt to establish it. The State has undertaken to provide a certain amount of education for every child. Legislation should either limit the amount or provide the same for all. The policy of this State is to provide a high school education.

Schooling from six until sixteen does not supply too much education for a lifetime. The State need not, on principle, stop with eight years of schooling. If six years be put into elementary education and four years into a superstructure fitting in some degree for the work of life, the common schools have not transcended their legitimate sphere.

Something of this kind is possible since the primary schools do not teach more than the child of ten can easily learn. Such education is the beginning, and with too many it is the end. It is a meager equipment for the activities of life.

CHARLES D. HINE.

APPENDIX

STATISTICAL TABLES.

The following tables are compiled from the returns which the law requires School Visitors to make to the Board of Education.

By way of explanation it may be said: —

1. The Grand List of each town is taken from the Comptroller's report to the General Assembly, January, 1897.

2. The per cent. of taxable property appropriated for public schools is based upon the total amount received for school purposes diminished by the amounts received from school fund, etc., town deposit fund, and local funds.

3. The amount paid for each enumerated scholar is found by dividing the total amount expended, less amount paid for new buildings, by number enumerated.

4. As has been the custom for a number of years past, the number "registered in Winter" is found by combining the number returned for Fall *and* Winter terms, taking the highest number found in either.

5. The "average attendance in Winter" is found in the same manner.

6. The "per cent. who have attended some part of the year" compares the "different scholars" with the "enumeration." The large per cents. attained by some small towns are explained by the attendance of scholars not enumerated.

7. *Regularity of attendance* and efficiency in this direction are indicated by the "per cent. of attendance on basis of registration."

8. The "per cent. of attendance on basis of enumeration" is found by dividing the average attendance for the year by the enumeration.

9. The number who "attended Normal School" is not complete.

10. By "schools" is intended the number of public schools in each town; and

11. By "departments" the number of departments in the public schools, counting each room of a graded school as one department.

12. The Public Libraries mentioned are not all free libraries.

13. The indebtedness incurred on account of schools is probably much larger than the amount reported. In towns where the districts have been consolidated and in some other towns it is made a part of the general indebtedness of the town and is not separately reported to this office.

14. Interest upon school district indebtedness, and expenditures of money for rent of school buildings, are included in the sums used in computing the cost per scholar upon basis of enumeration and also upon basis of average attendance.

STATISTICAL TABLES

HARTFORD COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Hartford,	$51,036,200	$27,393 75	$1,408 88	......	$95,688 61	$121,611 62	......	$16,538 99	$262,641 85	9
Avon,	446,903	558 00	172 20	$113 96	1,650 76	772 85	$62 00	60 00	3,389 77	2
Berlin,	1,031,968	1,201 50	147 80	261 00	3,455 70	1,627 07	......	207 05	6,900 12	1
Bloomfield,	712,596	535 50	166 20	......	2,070 16	250 00	......	45 00	3,066 86	2
Bristol,	3,809,864	4,090 50	216 38	......	26,858 69	6,175 67	......	186 28	37,527 52	2
Burlington,	313,126	632 25	198 85	81 40	1,487 80	......	......	92 28	2,492 58	..
Canton,	1,182,725	1,370 25	......	......	4,721 65	3,304 27	......	646 33	10,042 50	1
East Granby,	455,998	272 25	90 75	......	1,049 00	......	......	......	1,412 00	..
East Hartford,	2,682,337	2,954 25	287 00	......	8,766 19	2,110 08	......	16,385 22	30,502 74	..
East Windsor,	1,099,789	1,606 50	271 31	44 70	4,692 15	739 24	......	362 16	7,716 06	1
Enfield,	2,643,979	3,449 25	274 22	20 00	15,224 85	......	......	95 00	19,063 32	..
Farmington,	1,551,413	1,570 50	244 12	473 00	7,151 38	2,224 70	......	209 00	11,872 70	2
Glastonbury,	1,328,498	1,608 75	401 69	......	4,485 60	486 73	127 06	90 00	7,199 83	2
Granby,	395,862	560 25	296 12	......	1,924 44	......	41 90	......	2,822 71	..
Hartland,	173,842	218 25	......	......	1,298 90	......	......	......	1,517 15	1
Manchester,	....	2,187 00	267 00	......	10,495 57	......	......	60 00	13,009 57	..
" Ninth District,	....	2,400 75	......	......	16,599 00	......	335 72	139 25	19,474 72	..
" complete,	3,979,477	4,587 75	267 00	......	27,094 57	......	335 72	199 25	32,484 29	..
Marlborough,	179,070	195 75	108 48	......	627 27	......	......	24 00	955 50	..
New Britain,	9,086,126	10,856 25	......	......	39,748 09	......	......	......	50,604 34	..
Newington,	443,762	391 50	68 24	......	1,058 34	......	26 89	52 67	1,597 64	..
Plainville,	685,790	783 00	......	......	5,532 30	......	......	504 57	6,819 87	..
Rocky Hill,	390,903	450 00	177 19	......	852 89	......	13 00	44 41	1,537 49	..
Simsbury,	1,145,934	927 00	163 13	33 12	2,888 47	229 07	177 12	......	4,417 91	1
Southington,	2,173,124	2,556 00	271 22	594 30	16,335 67	......	......	58 75	19,815 94	..
South Windsor,	1,039,664	724 50	243 55	......	4,018 66	......	......	195 00	5,181 71	..
Suffield,	1,875,600	1,377 00	437 69	......	4,938 93	......	......	1,246 23	7,999 85	..
West Hartford,	2,442,504	1,086 75	99 60	25 50	9,505 02	......	......	45 00	10,761 87	..
Wethersfield,	1,296,502	868 50	107 31	845 00	2,996 61	......	......	256 64	5,074 06	..
Windsor,	1,398,000	1,404 00	......	......	6,918 25	2,505 77	......	......	10,828 02	3
Windsor Locks,	1,574,135	1,701 00	......	......	3,597 62	......	......	......	5,298 62	..
29 Towns.	$96,575,791	$75,930 75	$6,118 93	$2,491 98	$306,638 57	$142,037 07	$783 69	$37,543 83	$571,544 82	27

HARTFORD COUNTY.

TOWNS.	PENSES.							Cost of Superintendence.	District Indebtedness.	Per cent. etc.*	Per cent. etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Hartford,	$175,853 54	$17,871 91	$8,775 38	$5,758 27	$11,730 67	$45,525 82	$265,515 59	$1,500 00	$633,100 00	4.58	1.87	$20 84	$36 70
Avon,	2,186 89	236 03	273 67	......	2,129 92	72 00	4,898 51	72 00	1,700 00	5.69	3.69	11 16	17 30
Berlin,	4,425 55	811 38	1,190 63	51 60	4,676 00	324 63	11,479 79	80 00	......	5.12	3.34	12 74	22 56
Bloomfield,	2,424 85	239 92	8 00	80 00	......	66 75	2,819 52	48 00	......	3.31	2.90	11 84	23 49
Bristol,	27,654 03	3,861 38	2,339 31	520 00	8,298 49	5,488 84	48,162 05	600 00	38,393 95	8.71	7.04	21 92	31 82
Burlington,	2,200 62	201 19	13 93	......	......	72 00	2,487 74	72 00	......	5.04	4.75	8 85	16 98
Canton,	6,902 57	1,427 70	214 51	25 00	......	400 35	8,970 13	200 25	3,200 00	7.33	3.99	14 72	18 62
East Granby,	1,284 00	89 00	......	......	......	39 00	1,412 00	39 00	......	2.30	2.30	11 66	18 57
East Hartford,	10,011 42	1,714 19	1,669 27	123 17	15,700 00	1,256 26	30,474 31	175 00	6,262 29	10.16	3.26	11 25	18 31
East Windsor,	6,029 20	754 72	1,453 39	137 00	.....	654 47	9,028 78	120 00	1,381 20	5.26	4.26	12 64	23 12
Enfield,	13,145 82	1,199 14	1,282 72	250 00	......	3,185 64	19,063 32	323 56	......	5.79	5.75	12 43	24 98
Farmington,	8,269 98	647 69	534 67	149 22	......	1,105 42	10,706 98	60 00	2,900 00	6.17	4.60	15 33	21 07
Glastonbury,	5,661 43	535 07	1,060 99	216 56	......	342 12	7,816 17	258 64	796 07	3.90	3.37	10 93	18 05
Granby,	2,580 02	170 69	......	......	......	72 00	2,822 71	72 00	......	4.96	4.86	11 33	17 86
Hartland,	1,386 00	81 15	......	......	......	50 00	1,517 15	50 00	......	7.47	7.47	15 64	29 74
Manchester,	9,599 17	1,692 78	......	427 78	......	1,289 84	13,009 57	544 50	......	....	....	13 38	21 88
" 9th District,	15,086 13	2,933 63	......	......	......	1,454 96	19,474 72	211 00	......	....	....	18 25	24 13
" complete,	24,685 30	4,626 41	......	427 78	......	2,744 80	32,484 29	755 50	......	6 94	6 80	15 93	23 17
Marlborough,	884 00	44 60	......	......	......	21 00	949 60	21 00	......	3.63	3.50	10 91	20 64
New Britain,	35,553 42	3,587 87	2,270 30	1,907 03	......	7,285 72	50,604 34	1,984 63	......	4.37	4.37	10 48	21 85
Newington,	1,285 80	189 27	82 57	......	......	40 00	1,597 64	40 00	224 36	2.56	2.38	9 18	17 55
Plainville,	4,112 65	2,424 48	239 74	43 00	.....	......	6,819 87	64 00	......	8.80	8.06	19 59	28 18
Rocky Hill,	1,275 50	130 88	48 70	......	......	25 00	1,480 08	25 00	58 00	2.32	2.18	7 40	14 09
Simsbury,	3,637 47	382 55	335 62	......	......	66 00	4,421 64	66 00	......	2.87	2.52	10 73	20 66
Southington,	14,290 44	4,025 37	.....	......	......	1,500 00	19,815 81	1,500 00	12,105 94	7.54	7.51	17 44	23 78
South Windsor,	4,486 75	410 96	......	195 00	......	89 00	5,181 71	89 00	......	4.05	3.86	16 09	24 97
Suffield,	5,721 12	854 73	907 08	32 30	...	553 00	8,068 23	135 39	2,395 13	3.29	2 63	13 18	22 47
West Hartford,	6,807 61	492 17	901 68	210 00	19,082 08	2,350 41	29,843 95	350 00	37,000 00	3.90	3.89	22 28	32 36
Wethersfield,	3,716 25	780 55	191 68	115 00	......	270 58	5,074 06	50 00	300 00	2.50	2.31	13 14	18 28
Windsor,	7,003 00	1,287 80	512 28	304 15	......	252 00	9,359 23	124 33	19,472 84	6.74	4.94	14 99	22 28
Windsor Locks,	2,970 00	1,659 44	669 18	......	......	......	5,298 62	60 00	.....	2.28	2.28	7 00	31 91
29 Towns.	$386,445 23	$50,738 24	$24,975 30	$10,545 08	$61,617 16	$73,852 81	$608,173 82	$8,935 30	$759,289 78	5.04	3.17	$16 19	$27 92

* Of taxable property appropriated for Public Schools, in mills and 100ths.
† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

NEW HAVEN COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
New Haven City, ...	....	$46,082 25	$1,135 17	....	$66,823 40	$249,802 79	....	$17,063 12	$380,906 73	1
" Westville, ..	....	900 00	22 17	....	1,473 82	11,354 29	....	111 33	13,861 61	1
" South,........	....	155 25	6 39	....	148 00	89 00	....	98 14	496 78	1
" complete, ...	$55,600,370	47,137 50	$1,163 73	....	68,445 22	261,246 08	....	17,272 59	395,265 12	3
Ansonia, ...	3,218,507	6,131 25	....	....	24,662 43	....	....	140 92	30,934 60	..
Beacon Falls, ...	224,590	227 25	90 22	....	724 38	....	....	....	1,041 85	..
Bethany, ...	370,903	231 75	76 52	....	1,022 82	....	....	....	1,331 09	..
Branford, ...	1,901,866	2,162 25	159 23	$36 00	12,846 37	....	....	....	15,203 85	..
Cheshire, ...	996,567	792 00	28 00	....	4,016 89	....	....	....	4,836 89	..
Derby, ...	3,729,756	3,557 25	100 00	....	11,342 75	....	....	....	15,000 00	..
East Haven, ...	607,249	384 75	50 57	....	801 92	....	$1,026 00	30 00	2,293 24	..
Guilford, ...	1,003,140	1,120 50	....	....	5,672 00	....	....	179 91	6,972 41	..
Hamden, ...	1,741,665	1,998 00	....	....	6,786 97	....	....	....	8,784 97	..
Madison, ...	795,020	578 25	247 44	....	3,084 65	....	5 00	....	3,915 34	..
Meriden, ...	13,026,529	14,195 25	251 17	....	55,889 02	19,786 58	....	7,370 33	97,492 35	3
Middlebury, ...	257,715	326 25	126 00	....	774 43	....	....	....	1,226 68	..
Milford, ...	1,431,107	1,617 75	8 46	....	6,060 25	....	....	....	7,686 46	..
Naugatuck, ...	2,561,643	3,982 50	....	....	18,115 40	18,438 20	....	4 25	40,540 35	2
North Branford, ...	440,218	396 00	84 14	19 76	1,277 94	....	....	....	1,777 84	..
North Haven, ...	799,467	747 00	197 53	37 50	2,661 28	....	38 00	181 09	3,862 40	1
Orange, ...	2,832,756	2,805 75	....	....	13,323 96	1,013 53	15 00	145 00	17,303 24	1
Oxford, ...	310,893	508 50	241 54	22 94	1,246 00	25 00	139 00	32 00	2,214 98	4
Prospect, ...	158,232	236 25	98 83	....	553 46	....	....	....	888 54	..
Seymour, ...	1,333,029	1,631 25	109 00	5 00	8,266 00	....	....	....	10,011 25	..
Southbury, ...	418,465	582 75	119 97	....	1,380 22	....	....	....	2,082 94	..
Wallingford, ...	3,338,750	3,777 75	....	....	11,164 85	16,767 49	....	293 44	32,003 53	3
Waterbury, ...	....	2,283 75	129 76	40 80	6,891 69	6,706 21	....	10 00	16,062 21	6
" Center, ...	....	20,277 00	....	....	....	111,000 00	....	2,000 00	133,277 00	1
" complete, ...	12,142,410	22,560 75	129 76	40 80	6,891 69	117,706 21	....	2,010 00	149,339 21	7
Wolcott, ...	218,617	303 75	129 01	492 25	433 61	....	....	....	1,358 62	..
Woodbridge, ...	496,238	373 50	124 69	9 44	1,586 23	....	30 00	30 00	2,153 86	..
26 Towns.	$109,955,702	$118,365 75	$3,535 81	$663 69	$269,030 74	$434,983 09	$1,253 00	$27,689 53	$855,521 61	24

NEW HAVEN COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent. etc.*	Per cent. etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries & Apparatus.	New Buildings.	Other Objects.	Total.						
New Haven City,...	$256,517 17	$42,309 62	$12,013 53	$1,476 51	$123,958 53	$74,691 13	$510,966 49	$3,500 00	$878,662 48	....	....	$18 89	$30 47
" Westville,	4,967 25	741 39	291 69	21 00	....	6,026 62	12,047 95	100 00	4,000 00	....	....	30 11	43 18
" South,...	360 00	71 80	11 00	....	....	....	442 80	21 80	....	....	....	6 41	12 13
" complete,	261,844 42	43,122 81	12,316 22	1,497 51	123,958 53	80,717 75	523,457 24	3,621 80	882,662 48	6.24	1.23	19 06	30 69
Ansonia,............	23,335 00	2,402 35	1,683 25	238 60	....	3,275 40	30,934 60	134 00	....	7.70	7.66	11 35	16 77
Beacon Falls,.......	862 00	144 80	....	....	....	35 05	1,041 85	35 05	....	3.22	3.22	10 31	20 23
Bethany,....... ...	1,159 93	105 06	....	20 00	....	36 00	1,320 99	36 00	....	2.75	2.75	12 82	24 01
Branford,...........	9,288 43	924 08	1,680 40	541 74	1,196 65	1,566 80	15,198 10	110 00	....	6.75	6.75	14 56	20 00
Cheshire,...........	4,225 00	511 89	....	....	....	100 00	4,836 89	100 00	40 00	4.03	4.03	13 74	20 36
Derby,..............	10,440 00	826 35	455 88	85 00	....	3,192 77	15,000 00	1,500 00	....	3.04	3.04	9 48	26 50
East Haven,........	1,000 73	85 07	51 05	....	10,473 99	78 47	11,689 31	23 24	9,703 86	3.05	1.32	7 10	15 38
Guilford,...........	6,323 66	238 38	38 15	....	....	101 60	6,701 79	100 00	....	5.83	5.65	13 45	20 24
Hamden,....... ...	6,650 66	547 88	745 26	65 49	209 11	566 57	8,784 97	319 40	....	3.89	3.89	9 65	17 64
Madison,...........	3,064 56	409 91	300 37	42 00	....	98 50	3,915 34	98 50	....	3.88	3.87	15 23	22 89
Meriden,...........	58,779 63	4,733 76	2,337 68	270 00	....	28,399 12	94,520 19	1,200 00	116,515 00	6.37	4.29	14 98	29 27
Middlebury,.......	1,149 65	62 03	....	....	....	15 00	1,226 68	15 00	....	3.00	3.00	8 45	14 26
Milford,....	6,190 00	862 95	239 54	....	....	393 97	7,686 46	78 00	....	4.23	4.23	10 69	17 77
Naugatuck,...	20,358 55	1,855 54	1,136 99	115 00	7,842 40	6,541 81	37,850 29	243 60	17,609 40	14.27	7.07	16 95	24 09
North Branford, ...	1,586 70	160 14	....	....	....	31 00	1,777 84	31 00	....	2.90	2.90	10 10	20 67
North Haven,.......	3,204 30	373 51	69 21	....	....	428 20	4,075 22	65 50	2,434 43	3.60	3.32	12 27	20 02
Orange,............	12,757 52	3,234 86	865 76	109 95	....	2,850 88	19,818 97	132 50	48,018 50	5.11	4.70	15 89	23 76
Oxford,............	1,840 78	110 56	138 00	....	....	100 00	2,189 34	100 00	....	4.63	4.00	9 68	21 67
Prospect,..........	684 00	44 71	....	40 00	....	21 00	789 71	21 00	....	3.49	3.49	7 52	15 33
Seymour,..........	7,947 28	1,921 62	....	25 00	....	....	9,893 90	94 00	37,000 00	6.20	6.20	13 64	20 69
Southbury,........	1,850 36	167 08	....	....	....	71 50	2,088 94	71 50	....	3.29	3.29	8 06	20 37
Wallingford,........	19,756 31	2,592 47	2,774 70	188 58	....	1,669 11	26,981 17	429 11	60,540 12	8.45	3.34	16 06	23 91
Waterbury,.........	8,830 80	1,574 26	311 79	89 88	2,192 32	2,054 21	15,053 26	814 00	17,149 52	....	....	12 67	24 56
" Centre,..	80,875 00	6,970 48	2,041 21	650 00	51,254 50	44,987 96	186,779 15	3,550 00	175,000 00	....	....	15 03	31 32
" complete,	89,705 80	8,544 74	2,353 00	739 88	53,446 82	47,042 17	201,832 41	4,364 00	192,149 52	10.42	0.56	14 79	30 59
Wolcott,...........	1,224 00	109 00	25 62	....	....	....	1,358 62	30 00	....	1.98	1.98	10 06	22 83
Woodbridge,.......	1,876 28	171 01	10 57	60 00	....	36 00	2,153 86	36 00	....	3.31	3.19	12 97	21 32
26 Towns.	$557,105 55	$74,262 56	$27,221 65	$4,038 75	$197,127 50	177,368 67	$1,037,124 68	$12,989 20	1,366,673 31	6.66	2.44	$15 96	$27 51

* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

NEW LONDON COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
New London,	$9,085,667	$6,565 50	$750 32	$274 60	$27,800 00	......	......	$786 08	$36,176 50	..
Norwich Town,	....	549 00	38 02	......	664 98	$3,187 00	......	32 00	4,471 00	1
" Central,	....	3,109 50	215 33	......	3,820 41	24,442 30	......	5,915 44	37,502 98	1
" West Chelsea,	....	2,371 50	164 23	......	2,186 71	7,912 52	......	50 00	12,684 96	1
" Falls,	....	648 00	44 89	......	673 16	1,870 82	......	15 00	3,251 87	1
" other districts,	....	4,846 50	335 61	......	6,974 35	9,347 56	$46 00	850 71	22,400 73	3
" complete,	13,755,347	11,524 50	798 08	......	14,319 61	46,760 20	46 00	6,863 15	80,311 54	7
Bozrah,	392,792	429 75	......	......	1,309 15	......	......	.....	1,738 90	..
Colchester,	934,466	1,091 25	228 36	. ....	4,238 63	26 33	39 00	238 90	5,862 47	..
East Lyme,	687,387	787 50	......	......	2,706 87	900 00	......	90 00	4,484 37	1
Franklin,	279,703	191 25	127 48	102 30	1,250 13	......	......	......	1,671 16	..
Griswold,	1,542,379	1,764 00	25 04	......	6,411 27	1,161 57	7 70	35 00	9,404 58	2
Groton,	1,919,030	2,373 75	410 36	......	7,369 53	2,823 90	187 00	6 50	13,171 04	2
Lebanon,	874,281	749 25	452 14	115 36	2,765 72	1,760 48	5 00	5 00	5,852 95	2
Ledyard,	350,969	634 50	285 40	54 58	1,627 79	......	45 00	. ....	2,647 27	..
Lisbon,	241,102	252 00	......	......	798 00	15 00	......	......	1,065 00	1
Lyme,	266,438	366 75	222 93	......	710 51	......	30 00	......	1,330 19	..
Montville,	994,616	1,419 75	......	......	3,686 04	2,428 33	23 25	12 84	7,570 21	2
North Stonington,	534,311	704 25	467 78	30 00	2,381 12	.....	......	95 00	3,678 15	1
Old Lyme,	452,149	488 25	225 00	......	1,471 75	......	......	35 00	2,220 00	..
Preston,	853,376	1,395 00	298 16	......	3,288 56	635 56	......	5 00	5,622 28	1
Salem,	195,401	256 50	123 15	20 20	603 32	......	62 28	43 63	1,109 08	..
Sprague,	598,057	785 25	154 05	......	1,479 04	......	......	......	2,418 34	..
Stonington,	2,781,966	3,586 50	524 09	......	10,609 94	7,090 76	10 00	1,227 36	23,048 65	6
Voluntown,	229,969	542 25	200 95	......	1,298 67	200 00	36 50	20 00	2,298 37	1
Waterford,	1,044,105	1,300 50	......	......	3,172 03	23 00	20 00	......	4,515 53	1
21 Towns.	$38,013,511	$37,208 25	$5,293 29	$597 04	$99,297 68	$63,825 13	$511 73	$9,463 46	$216,196 58	27

NEW LONDON COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent. etc.*	Per cent. etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
New London,.....	$25,721 90	$2,414 23	$947 29	$479 97	$59,543 12	$7,963 29	$97,069 80	$300 00	$163,000 00	3.14	3.05	$12 86	$22 91
Norwich Town,....	2,401 00	840 00	77 00	15 00	....	1,138 00	4.471 00	31 50	6,000 00	....	....	18 32	29 31
" Central,.......	21,271 88	2,996 25	1,460 44	200 00	....	2,155 56	28,084 13	2,500 00	55,000 00	....	..	20 32	30 18
" West Chelsea,..	8,699 50	486 14	957 33	153 35	....	1,658 49	11,954 81	100 00	6,000 00	...	....	11 34	19 40
" Falls,.........	2,521 50	679 66	97 69	50 00	....	349 27	3,698 12	....	2,700 00	....	....	12 84	32 01
" other Districts,	14,461 08	3,693 83	1,329 10	65 00	....	999 72	20,548 73	500 00	8,165 00	....	...	9 53	26 29
" complete,......	49,354 96	8,695 88	3,921 56	483 35	....	6,301 04	68,756 79	3,131 50	77,865 00	4.94	1.04	13 42	26 43
Bozrah,..........	1,568 94	110 96	14 95	....	....	59 00	1.753 85	59 00	....	3.33	3.33	9 18	15 38
Colchester,.........	5,007 11	313 83	135 00	55 17	....	351 53	5.862 64	40 00	....	4.86	4.53	12 08	19 12
East Lyme,.........	3,241 53	206 66	119 19	....	....	851 58	4,418 96	72 00	....	5.37	3.93	12 62	18 56
Franklin,..........	1,516 07	83 38	....	....	....	85 55	1,685 00	85 55	....	4.46	4.46	19 82	31 20
Griswold,..........	7,600 38	808 88	229 07	72 70	....	769 66	9,480 69	160 16	....	4.93	4.15	12 09	22 92
Groton,............	9,145 84	1,076 03	390 63	39 00	....	471 75	11,123 25	157 75	4,962 00	5.41	3 84	10 54	16 95
Lebanon,..... ...	3,714 97	254 50	1,760 48	10 00	....	113 00	5,852 95	113 00	....	5.18	3.16	17 57	31 80
Ledyard,..........	2,372 35	129 92	....	9 00	....	100 00	2,611 27	100 00	....	4.76	4.63	9 25	16 06
Lisbon,...	1,035 00	20 00	....	....	....	10 00	1,065 00	....	....	3.37	3.30	9 50	15 32
Lyme,.......	1,217 99	66 20	....	....	....	47 61	1,331 80	44 00	....	2.77	2.66	8 17	15 22
Montville,.........	4,990 25	368 46	1,706 94	23 25	....	392 95	7,481 85	109 70	26 95	6.18	3.70	11 85	18 65
North Stonington,...	3,252 10	183 58	373 00	225 00	....	115 38	4,149 06	115 38	48 25	4.63	4.45	13 25	20 69
Old Lyme,..........	1,868 00	227 00	....	75 00	....	50 00	2,220 00	40 00	... .	3.33	3.25	10 23	16 08
Preston,........ ...	4,804 22	336 03	780 10	....	....	125 00	6,045 35	125 00	50 00	4.60	3.85	9 75	14 72
Salem,.............	988 14	40 62	2 00	28 00	....	50 26	1,109 02	30 00	1,500 00	3.62	3.08	9 72	16 55
Sprague,...........	1,849 16	375 18	106 00	....	....	88 00	2,418 34	88 00	106 00	2.47	2.47	6 92	14 01
Stonington,.........	13,144 34	1,699 95	2,982 87	125 97	....	2,724 95	20,678 08	423 32	32,255 74	6.80	3.81	12 97	22 67
Voluntown,.........	1,867 05	121 01	201 50	55 00	....	53 81	2,298 37	53 81	....	6.76	5.64	9 53	14 68
Waterford, ...	3,866 54	342 67	600 00	20 00	....	129 00	4,958 21	114 00	1,825 00	3 07	3.03	8 57	18 53
21 Towns.	$148,126 84	$17,874 97	$14,270 58	$1,701 41	$59,543 12	$20,853 36	$262,370 28	$5,362 17	$281,638 94	4.55	2.61	$12 26	$21 92

* Of taxable property appropriated for Public Schools, in mills and 100ths.
† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

FAIRFIELD COUNTY.

TOWNS.	Grand List.	RECEIPTS.								District Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Bridgeport,	$46,760,148	$30,665 25	$431 00	......	$122,670 35	......	......	......	$153,766 60	..
Danbury,	7,380,745	10,392 75	......	$86 00	30,143 36	$1,935 48	......	$3,300 84	45,858 43	4
Bethel,	1,187,542	1,676 25	154 20	10 45	8,476 44	......	......	......	10,317 34	..
Brookfield,	392,286	470 25	......	......	1,877 30	... ..	......	......	2,347 55	..
Darien,	1,798,603	787 50	153 85	......	3,881 77	......	......	40 00	4,863 12	..
Easton,	393,675	423 00	139 38	127 98	1,807 51	......	......	18 12	2,515 99	..
Fairfield,	2,152,496	1,948 50	360 00	228 62	8,297 46	......	......	......	10,834 58	..
Greenwich,	6,281,399	5,170 50	48 00	.. ...	12,385 33	2,644 00	......	78 00	20,325 83	3
Huntington,	1,477,201	2,315 25	176 06	50 04	11,226 75	......	......	85 00	13,853 10	..
Monroe,	318,367	418 50	78 00	......	1,462 57	300 00	......	75 20	2,334 27	..
New Canaan,	1,479,872	1,350 00	209 00	15 62	7,363 90	......	......	... ..	8,938 52	..
New Fairfield,	282,226	328 50	100 00	......	1,188 46	485 00	......	......	2,101 96	1
Newtown,	1,537,711	1,314 00	475 54	......	6,111 89	......	$88 00	......	7,989 43	1
Norwalk,	10,463,425	9,659 25	472 62	144 00	32,153 04	11,520 74	98 00	399 05	54,446 70	6
Redding,	488,036	528 75	173 20	16 47	1,841 55	......	9 75	......	2,569 72	..
Ridgefield,	1,385,825	1,080 00	230 40	......	4,714 92	500 00	75 00	77 73	6,678 05	2
Sherman,	345.115	247 50	144 00	......	1,092 75	......	......	......	1,484 25	..
Stamford,	9,528,592	9,159 75	396 96	218 68	48,875 27	......	......	201,85	58,852 51	..
Stratford,	1,046,805	1,381 50	137 65	112 00	4,381 35	1,701 98	144 00	20 00	7,878 48	1
Trumbull,	598,887	672 75	170 39	60 45	1,720 87	......	66 58	40 00	2,731 04	..
Weston,	325,741	335 25	30 00	123 47	797 00	......	......	......	1,285 72	..
Westport,	2,216,318	1,770 75	224 36	......	3,248 65	2,295 22	19 00	727 89	8,285 87	2
Wilton,	575,163	837 00	......	......	2,015 25	275 00	256 82	21 50	3,405 57	..
23 Towns.	$98,416,178	$82,932 75	$4,304 61	$1,193 78	$317,733 74	$21,657 42	$757 15	$5,085 18	$433,664 63	20

FAIRFIELD COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent., etc.*	Per cent., etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Bridgeport,	$99,200 66	$19,204 96	$21,027 81	$83 11	....	$14,240 06	$153,756 60	$3,000 00	....	2.62	2.62	$11 28	$22 37
Danbury,	33,444 00	5,058 55	1,453 21	269 05	$25,570 92	9,329 67	75,125 40	641 00	$85,626 00	4.79	4.08	10 72	20 93
Bethel,	7,040 40	2,474 26	202 19	50 00	545 99	....	10,312 84	158 75	....	7.13	7.13	13 10	17 62
Brookfield,	2,151 00	150 55	....	....	....	40 00	2,341 55	40 00	....	4.78	4.78	11 20	22 95
Darien,	4,022 30	690 82	34 50	40 00	....	110 00	4,897 62	110 00	2,415 00	2.18	2.15	13 99	28 80
Easton,	2,246 79	148 41	2 12	16 00	....	77 30	2,490 62	77 30	....	4.63	4.59	13 24	30 93
Fairfield,	8,708 91	573 37	242 24	80 00	....	1,230 06	10,834 58	194 00	....	3.85	3.85	12 51	24 73
Greenwich,	16,350 00	1,258 83	....	....	....	....	17,608 83	......	45,000 00	2.40	1.97	7 66	16 14
Huntington,	9,981 95	1,628 79	....	200 00	....	2,042 36	13,853 10	233 81	28,000 00	7.65	7.60	13 46	22 82
Monroe,	1,803 96	103 37	300 00	15 20	....	111 75	2,334 28	51 75	....	5.77	4.59	12 54	22 66
New Canaan.	6,780 00	987 33	933 82	26 80	....	210 57	8,938 52	......	....	4.97	4.97	14 89	27 71
New Fairfield,	1,490 00	72 96	....	....	485 00	64 00	2,111 96	64 00	....	5.93	4.21	11 14	20 21
Newtown,	6,855 91	522 99	83 00	....	....	542 43	8,004 33	542 43	699 49	4.03	3.97	11 94	26 90
Norwalk,	36,123 69	5,271 59	2,643 35	242 76	....	5,809 38	50,090 77	476 63	45,840 56	4.22	3.07	11 66	21 38
Redding,	2,345 26	158 71	8 75	....	....	57 00	2,569 72	57 00	....	3.79	3.77	10 93	22 24
Ridgefield,	5,788 18	641 31	1,675 96	160 00	....	185 63	8,451 08	125 00	1,100 00	3.87	3.40	17 60	29 70
Sherman,	1,359 20	89 05	....	....	....	46 00	1,494 25	46 00	....	3.16	3.16	13 58	28 73
Stamford,	48,370 65	10,481 86	....	....	....	....	58,852 51	2,575 00	....	5.15	5.12	14 45	26 83
Stratford,	5,147 73	714 77	....	154 00	....	150 00	6,166 50	150 00	18,500 00	5.96	4.18	10 04	20 05
Trumbull,	2,388 45	176 01	....	94 37	....	60 00	2,718 83	60 00	....	3.05	2.87	9 09	17 31
Weston,	1,179 09	66 62	....	....	....	40 00	1,285 71	40 00	....	2.44	2.44	8 62	15 67
Westport,	4,696 60	447 16	525 75	19 00	2,439 51	135 78	8,263 80	100 00	1,040 00	2.83	1.46	7 40	16 61
Wilton,	2,672 38	192 93	200 00	79 00	194 32	28 50	3,367 13	28 50	....	4.46	3.50	8 52	17 62
23 Towns.	$310,147 11	$51,115 20	$29,332 70	$1,529 29	$29,235 74	$34,510 49	$455,870 53	$8,771 17	$228,221 05	3.50	3.22	$11 54	$22 27

* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

WINDHAM COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Brooklyn,	$1,250,418	$1,127 25	$225 00	$15 48	$3,301 89	$541 51	.....	$28 00	$5,239 13	3
Ashford,	183,588	297 00	200 04	......	1,129 93	100 42	......	......	1,727 39	2
Canterbury,	329,875	378 00	144 78	19 20	1,498 30	51 26	$10 90	......	2,102 44	1
Chaplin,	171,785	220 50	124 36	......	601 41	......	16 94	20 00	983 21	..
Eastford,	145,397	285 75	126 44	......	545 88	......	49 50	......	1,007 57	..
Hampton,	277,656	285 75	122 40	......	1,112 25	25 62	29 50	......	1,575 52	..
Killingly,	2,189,016	3,314 25	461 82	150 00	12,258 12	2,710 75	10 00	731 22	19,636 16	1
Plainfield,	1,788,325	2,495 25	299 05	......	5,935 76	1,430 17	......	97 50	10,257 73	3
Pomfret,	838,128	607 50	272 50	22 58	1,763 12	......	......	......	2,665 70	..
Putnam,	3,030,185	3,413 25	259 04	......	6,441 23	......	......	......	10,113 52	..
Scotland,	195,541	207 00	66 29	19 80	1,005 67	198 81	28 50	......	1,526 07	1
Sterling,	316,461	618 75	159 23	......	1,341 06	......	5 84	5 00	2,129 88	..
Thompson,	1,603,891	2,961 00	84 22	44 84	4,023 89	......	......	512 25	7,626 20	1
Windham,	4,461,418	4,419 00	348 94	56 82	20,386 44	10,468 01	25 00	3,154 61	38,858 82	4
Woodstock,	861,338	967 50	337 13	40 14	2,501 39	....	......	......	3,846 16	..
15 Towns.	$17,643,022	$21,597 75	$3,231 24	$368 86	$63,846 34	$15,526 55	$176 18	$4,548 58	$109,295 50	16

WINDHAM COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent., etc.*	Per cent., etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Brooklyn,..........	$3,890 42	$712 94	$626 00	... ..	.....	$1,122 13	$6,351 49	$88 00	....	3.09	2.64	$12 67	$32 40
Ashford,...........	1,495 41	94 06	89 75	......	......	42 00	1,721 22	42 00	$4 50	6.70	6.15	13 03	23 57
Canterbury,...	1,856 62	114 51	52 26	......	......	69 50	2,092 89	64 00	....	4.73	4.54	12 45	18 52
Chaplin,...........	656 40	50 50	24 07	$46 94	......	205 30	983 21	19 00	....	3.71	3.50	10 03	18 55
Eastford,...........	922 74	45 83	......	....	......	39 00	1,007 57	39 00	283 38	4.09	3.75	7 93	11 78
Hampton, ...	1,383 75	94 65	25 62	24 50	......	47 00	1,575 52	42 00	17 56	4.20	4.00	12 40	18 32
Killingly,...........	13,599 25	2,359 94	384 92	176 00	......	1,416 05	17,936 16	225 00	1,775 36	7 17	5.59	12 17	20 94
Plainfield,...........	7,738 33	825 15	302 56	70 00	......	727 75	9,663 79	184 00	....	4.17	3.31	8 71	15 81
Pomfret,............	2,445 73	144 97	......	......	......	75 00	2,665 70	75 00	. ...	2.10	2.10	9 87	18 13
Putnam, ...	8,514 39	1,403 06	180 00	......	... ..	197 00	10,294 45	197 00	1,156 00	2.12	2.12	6 78	20 44
Scotland,...........	1,214 68	57 48	167 00	......	......	26 00	1,465 16	26 00	. .. ...	6.30	5.14	15 92	25 70
Sterling,.......	1,909 31	126 73	......	10 84	......	83 00	2,129 88	83 00	....	4.27	4.23	7 74	13 06
Thompson,.........	5,780 07	720 24	493 50	41 70	......	612 74	7,648 25	197 26	350 00	2.82	2.50	5 81	19 76
Windham,..........	24,939 61	3,846 79	1,021 25	133 55	......	4,855 11	34,796 31	195 50	21,950 15	7.62	4.56	17 71	39 05
Woodstock,... . ..	3,491 84	234 32	......	......	......	120 00	3,846 16	120 00	....	2.90	2.90	8 94	16 98
15 Towns.	$79,838 55	$10,831 17	$3,366 93	$503 53	......	$9,637 58	$104,177 76	$1,596 76	$25,536 95	4.76	3.61	$10 85	$23 41

* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

LITCHFIELD COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Litchfield,	$2,520,216	$1,566 00	......	......	$6,858 71	......	......	$300 00	$8,724 71	..
Barkhamsted,	282,374	504 00	$264 24	......	904 33	......	......	......	1,672 57	..
Bethlehem,	284,310	225 00	57 20	......	728 41	......	......	......	1,010 61	..
Bridgewater,	355,589	272 25	148 88	$7 76	916 31	......	......	......	1,345 20	..
Canaan,	460,848	384 75	......	......	1,459 90	......	5 00	10 00	1,859 65	..
Colebrook,	265,762	454 50	......	......	1,530 88	$154 29	3 50	12 15	2,155 32	2
Cornwall,	606,744	546 75	240 12	38 82	1,498 54	......	321 00	......	2,645 23	..
Goshen,	454,928	411 75	......	......	1,271 25	......	64 87	......	1,747 87	..
Harwinton,	328,582	603 00	240 74	......	1,224 25	......	......	......	2,067 99	..
Kent,	446,804	587 25	......	......	2,507 75	67 00	100 00	......	3,262 00	1
Morris,	262,740	274 50	133 02	......	857 97	......	15 75	......	1,281 24	..
New Hartford,	949,908	1,602 00	......	25 00	3,771 65	1,250 00	10 00	99 75	6,758 40	1
New Milford,	1,888,108	1,759 50	......	143 35	7,159 97	......	......	......	9,062 82	..
Norfolk,	993,377	695 25	136 06	67 70	2,666 52	214 48	16 00	25 00	3,821 01	1
North Canaan,	685,029	837 00	174 57	......	2,183 43	......	......	16 00	3,211 00	..
Plymouth,	864,374	985 50	158 68	......	6,000 50	298 51	......	113 49	7,556 68	1
Roxbury,	309,829	434 25	172 00	6 00	1,004 15	......	......	......	1,616 40	..
Salisbury,	1,734,903	1,791 00	195 68	12 64	5,623 54	400 00	......	332 26	8,355 12	3
Sharon,	1,159,288	915 75	453 00	......	4,340 77	678 73	......	110 00	6,498 25	2
Thomaston,	1,494,348	1,633 50	......	......	6,450 16	......	......	......	8,083 66	..
Torrington,	3,782,754	4,261 50	237 60	150 00	32,764 48	......	......	......	37,413 58	..
Warren,	225,972	252 00	......	......	773 00	......	15 00	......	1,040 00	..
Washington,	988,670	731 25	249 80	......	2,474 44	......	......	6 00	3,461 49	..
Watertown,	1,374,896	1,197 00	253 15	......	4,203 75	4,495 20	120 70	20 00	10,289 80	1
Winchester,	2,741,759	3,296 25	273 05	......	11,174 40	......	30 00	94 15	14,867 85	..
Woodbury,	901,540	855 00	285 07	19 38	2,422 72	194 18	18 29	......	3,794 64	1
26 Towns.	$26,363,652	$27,076.50	$3,672 86	$470 65	$112,771 78	$7,752 39	$720 11	$1,138 80	$153,603 09	13

LITCHFIELD COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent., etc.*	Per cent., etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Litchfield, ...	$6,448 63	$725 08	$482 27	$300 00	....	$768 73	$8,724 71	$322 00	....	2.84	2.72	$12 53	$20 29
Barkhamsted,.......	1,472 00	115 57	......	......	....	85 00	1,672 57	85 00	$131 00	3.20	3 20	7 46	16 16
Bethlehem,.	924 74	63 87	......	......	....	22 00	1,010 61	22 00	....	2.56	2.56	10 10	20 62
Bridgewater,........	1,225 49	79 71	....	......	....	40 00	1,345 20	40 00	....	2.57	2.57	11 11	18 05
Canaan,.......	1,594 00	168 24	31 91	10 00	....	55 50	1,859 65	55 50	....	3.20	3.16	10 87	18 41
Colebrook,..........	1,815 64	119 71	58 87	14 00	....	95 43	2,103 65	54 00	162 52	6.39	5.76	10 41	17 60
Cornwall,.....	2,363 49	158 74	60 00	......	....	63 00	2,645 23	63 00	....	2.99	2.46	10 88	16 84
Goshen, ...	1,495 55	105 85	65 47	......	....	81 00	1,747 87	81 00	....	2 93	2 79	9 55	19 74
Harwinton,.	1,651 54	102 08	153 87	......	....	160 50	2,067 99	56 00	....	3.72	3.72	7 71	18 54
Kent, ...	2,825 91	247 09	86 00	......	....	103 00	3,262 00	90 00	....	5.98	5.61	12 49	21 18
Morris,.	1,169 74	57 71	18 54	......	....	35 00	1,280 99	35 00	....	3.32	3.26	10 49	19 40
New Hartford,.....	4,889 55	584 82	160 01	......	....	299 75	5,934 13	200 00	6,500 00	5.40	3.97	8 33	24 27
New Milford,.......	7,366 23	1,160 96	278 59	115 00	....	336 96	9,257 74	336 96	....	3.79	3.79	11 83	21 28
Norfolk,...........	3,121 30	288 91	172 78	48 27	....	189 75	3,821 01	67 00	....	2.94	2.68	12 36	19 95
North Canaan,......	2,732 04	247 27	30 00	......	....	170 00	3,179 31	70 00	....	3.21	3.18	8 54	14 48
Plymouth, ...	6,149 61	858 13	667 74	98 34	....	564 30	8,338 12	112 50	2,490 34	7.41	6.94	19 03	26 94
Roxbury, ...	1,441 40	129 81	......	......	....	45 00	1,616 21	45 00	....	3.24	3.24	8 37	15 92
Salisbury,..........	6,961 50	782 52	25 00	.....	$400 00	186 10	8,355 12	142 50	....	3.66	3.24	9 99	21 67
Sharon,......	4,558 00	438 00	378 33	669 01	42 00	412 91	6,498 25	154 51	....	4.42	3.74	15 86	28 13
Thomaston,.........	6,430 00	1,391 91	31 75	35 00	....	195 00	8,083 66	195 00	....	4.31	4.31	11 13	16 31
Torrington,.........	13,750 07	2,854 79	3,466 86	500 00	11,164 60	5,677 26	37,413 58	1,000 00	....	8.66	8.66	13 85	27 57
Warren,..	835 50	164 50	......	.....	....	66 50	1,066 50	26 50	....	3.48	3.42	9 52	20 50
Washington,.......	2,960 60	210 19	221 75	3 00	....	62 95	3,458 49	62 95	....	2.50	2.50	10 64	17 96
Watertown,.........	4,868 50	624 35	82 78	144 70	....	449 68	6,170 01	154 25	....	6.42	3.05	11 59	19 71
Winchester,.........	11,672 14	1,701 49	788 45	367 97	....	1,505 63	16,035 68	253 72	2,725 00	4.12	4.07	10 94	25 59
Woodbury,..........	3,212 78	197 68	209 18	....	....	175 00	3,794 64	175 00	....	2.92	2.68	9 98	21 19
26 Towns.	$103,935 95	$13,578 98	$7,470 15	$2,305 29	$11,606 60	$11,845 95	$150,742 92	$3,899 39	$12,008 86	4.64	4.27	$11 56	$21 88

* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

MIDDLESEX COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Middletown,	....	$2,763 00	$335 90	$120 00	$6,557 40	$180 44	......	$19 92	$9,976 66	..
" City,	....	3,917 25	478 55	69 62	5,700 00	15,479 09	......	2,347 00	27,991 51	1
" complete,	$8,659,652	6,680 25	814 45	189 62	12,257 40	15,659 53	......	2,366 92	37,968 17	1
Haddam,	626,903	981 00	466 15	......	2,163 90	50 00	349 48	......	4,010 53	..
Chatham,	664,298	834 75	231 42	......	2,559 83	......	10 00	467 00	4,103 00	..
Chester,	482,023	627 75	133 45	......	1,523 22	146 67	......	16 00	2,447 09	..
Clinton,	671,277	537 75	38 07	34 98	....	......	......	......	610 80	..
Cromwell,	913,333	1,109 25	151 28	26 03	2,501 07	13 05	60 45	5 00	3,866 13	..
Durham,	451,390	387 00	170 00	97 37	1,018 87	......	......	178 00	1,851 24	..
East Haddam,	1,092,051	1,075 50	278 08	......	3,614 59	755 66	......	......	5,723 83	2
Essex,	975,998	783 00	242 44	57 06	2,988 47	......	......	......	4,070 97	..
Killingworth,	191,688	249 75	157 58	10 31	1,210 10	......	......	......	1,627 74	..
Middlefield,	467,652	405 00	90 49	36 00	1,123 35	300 00	......	......	1,954 84	1
Old Saybrook,	597,225	567 00	18 00	......	3,589 10	......	......	25 00	4,199 10	..
Portland,	1,884,873	2,349 00	263 36	477 00	9,097 83	107 51	......	94 54	12,389 24	..
Saybrook,	679,846	594 00	84 68	......	2,876 21	......	88 27	423 05	4,066 21	..
Westbrook,	482,623	346 50	169 40	......	907 56	......	......	......	1,423 46	..
15 Towns.	$18,840,832	$17,527 50	$3,308 85	$928 37	$47,431 50	$17,032 42	$508 20	$3,575 51	$90,312 35	4

MIDDLESEX COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent., etc.*	Per cent., etc †	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Middletown,	$7,930 20	$928 17	$88 61	$16 50	....	$354 80	$9,318 28	$354 80	$1,290 00	......	......	$7 58	$11 01
" City,	16,423 62	1,740 22	556 39	247 01	$16,588 83	10,846 76	46,402 83	2,600 00	92,133 58	......	......	17 12	31 33
" complete,	24,353 82	2,668 39	645 00	263 51	16,588 83	11,201 56	55,721 11	2,954 80	93,423 58	3.49	1.41	13 18	21 77
Haddam,	3,447 95	374 33	63 25	25 00	....	100 00	4,010 53	100 00	750 00	4.08	3.45	9 19	17 36
Chatham,	3,756 30	306 62	....	10 00	....	210 90	4,283 82	86 00	639 54	4.57	3.85	11 54	17 96
Chester,	1,977 00	267 92	48 59	....	....	133 85	2,427 36	39 50	445 00	3.49	3.15	8 70	13 26
Clinton,	570 00	40 80	....	....	....	....	610 80	......	....	......	......	2 55	37 01
Cromwell,	3,332 63	322 97	13 05	18 00	....	179 48	3,866 13	60 00	....	2.82	2.73	7 84	13 42
Durham,	1,636 00	105 89	....	....	....	55 75	1,797 64	36 00	....	2.65	2.25	10 45	18 06
East Haddam,	4,441 18	418 81	....	10 00	....	143 51	5,013 50	143 51	....	4.00	3.30	10 48	17 34
Essex,	3,156 70	284 43	103 75	....	....	526 09	4,070 97	67 18	....	3.06	3.06	11 69	18 01
Killingworth,	1,486 00	83 10	.	....	....	58 64	1,627 74	58 64	....	6.31	6.31	14 66	23 93
Middlefield,	1,485 00	144 57	770 00	35 00	....	25 00	2,459 57	25 00	300 00	3.04	2.40	13 66	22 56
Old Saybrook,	3,011 36	280 18	106 46	50 00	....	751 10	4,199 10	62 00	9,500 00	6.05	6.00	16 66	26 57
Portland,	9.629 95	1,646 64	663 30	230 56	....	1,651 34	13,821 79	161 00	18,272 55	4.93	4.82	13 23	26 12
Saybrook,	3,027 60	374 42	20 30	88 27	....	555 62	4.066 21	60 00	10,000 00	4.98	4.23	15 40	19 40
Westbrook,	1,248 25	67 60	65 46	....	....	42 15	1,423 46	42 15	....	1.88	1.88	9 24	15 47
15 Towns	$66,559 74	$7,386 67	$2,499 16	$730 34	$16,588 83	$15,634 99	$109,399 73	$3,895 78	$133,330 67	3.63	2.51	$11 91	$20 46

* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

TOLLAND COUNTY.

TOWNS.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Tolland,	$360,106	$504 00	$273 16	......	$2,128 73	......	......	......	$2,905 89	..
Andover,	169,451	150 75	123 00	......	181 85	......	......	......	455 60	..
Bolton,	170,118	207 00	114 58	$47 40	566 02	......	......	$47 40	982 40	..
Columbia,	249,390	306 00	19 67	......	1,356 83	......	......	......	1,682 50	..
Coventry,	635,822	769 50	229 70	32 64	2,549 08	......	$30 00	55 00	3,665 92	..
Ellington,	692,564	769 50	224 21	......	2,564 74	$548 38	......	7 98	4,114 81	1
Hebron,	325,198	488 25	249 59	46 00	1,552 25	......	5 00	51 82	2,392 91	..
Mansfield,	571,092	760 50	303 04	60 35	2,597 57	......	35 70	74 60	3,831 76	.
Somers,	663,159	596 25	253 14	......	2,665 36	......	......	......	3,514 75	..
Stafford,	1,255,660	2,315 25	254 64	14 31	7,734 70	2,697 25	15 00	7,425 32	20,456 47	1
Union,	117,830	195 75	109 50	......	769 10	......	......	......	1,074 35	..
Vernon,	3,032,417	4,315 50	175 41	......	16,751 24	2,449 93	25 00	174 37	23,891 45	3
Willington,	207,461	479 25	......	......	1,492 88	......	61 00	......	2,033 13	..
13 Towns.	$8,450,268	$11,857 50	$2,329 64	$200 70	$42,910 35	$5,695 56	$171 70	$7,836 49	$71,001 94	5

TOLLAND COUNTY.

TOWNS.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent., etc.*	Per cent., etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Tolland,....	$2,637 96	$178 93	....	$30 00	....	$66 00	$2,912 89	$66 00	$36 00	5.91	5.91	$13 00	$21 49
Andover,..........	376 82	46 78	....	....	....	32 00	455 60	12 00	....	1.07	1.07	6 80	14 93
Bolton, ...	893 50	55 59	....	....	....	27 88	976 97	23 00	70 00	3.60	3.32	10 61	21 46
Columbia,....... ...	1,506 87	125 63	$47 89	....	....	62 00	1,742 39	50 00	....	5.44	5.44	12 81	19 25
Coventry,....... ...	3,217 49	210 00	....	140 00	....	218 98	3,786 47	122 00	1,505 00	4.14	4.00	11 07	17 65
Ellington, ...	3,200 96	321 92	38 90	....	....	467 95	4,029 73	60 00	5,100 00	4.50	3.70	11 78	20 82
Hebron, ...	2,134 50	148 03	21 00	10 00	....	75 15	2,388 68	58 00	135 82	4.94	4.77	11 00	17 89
Mansfield,..........	3,394 80	267 02	22 20	27 09	....	85 00	3,796 11	85 00	100 00	4.74	4.54	11 23	18 79
Somers, ...	3,150 00	294 75	....	....	....	70 00	3,514 75	70 00	....	4.01	4.01	13 26	18 99
Stafford, ...	8,968 00	933 86	373 50	102 25	$7,112 40	2,256 01	19,746 02	375 64	21,255 91	14.23	6.15	12 27	23 15
Union, ...	979 83	50 52	....	....	....	44 00	1,074 35	44 00	....	6.52	6.52	12 34	19 53
Vernon, ...	17,276 79	2,378 58	1,669 35	679 79	183 47	326 50	22,514 48	326 50	9,100 00	6.39	5 52	11 64	19 92
Willington,.........	1,763 50	127 79	24 99	....	....	116 85	2,033 13	73 00	....	7.49	7.19	9 54	15 46
13 Towns.	$49,501 02	$5,139 40	$2,197 83	$989 13	$7,295 87	$3,848 32	$68,971 57	$1,365 14	$37,302 73	6.69	5.07	$11 70	$19 97

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* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

SUMMARY BY COUNTIES.

COUNTIES.	Grand List.	RECEIPTS.								Districts Taxing.
		School Fund, etc.	Town Deposit.	Local Funds.	Town Tax.	District Tax.	Voluntary Contrib.	Other Sources.	Total.	
Hartford,	$96,575,791	$75,930 75	$6,118 93	$2,491 98	$306,638 57	$142,037 07	$783 69	$37,543 83	$571,544 82	27
New Haven,	109,955,702	118,365 75	3,535 81	663 69	269,030 74	434,983 09	1,253 00	27,689 53	855,521 61	24
New London,	38,013,511	37,208 25	5,293 29	597 04	99,297 68	63,825 13	511 73	9,463 46	216,196 58	27
Fairfield,	98,416,178	82,932 75	4,304 61	1,193 78	317,733 74	21,657 42	757 15	5,085 18	433,664 63	20
Windham,	17,643,022	21,597 75	3,231 24	368 86	63,846 34	15,526 55	176 18	4,548 58	109,295 50	16
Litchfield,	26,363,652	27,076 50	3,672 86	470 65	112,771 78	7,752 39	720 11	1,138 80	153,603 09	13
Middlesex,	18,840,832	17,527 50	3,308 85	928 37	47,431 50	17,032 42	508 20	3,575 51	90,312 35	4
Tolland,	8,450,268	11,857 50	2,329 64	200 70	42,910 35	5,695 56	171 70	7,836 49	71,001 94	5
The State,	$414,258,956	$392,496 75	$31,795 23	$6,915 07	$1,259,660 70	$708,509 63	$4,881 76	$96,881 38	$2,501,140 52	136

SUMMARY BY COUNTIES.

COUNTIES.	EXPENSES.							Cost of Superintendence.	District Indebtedness.	Per cent., etc.*	Per cent., etc.†	Paid for each child enumerated.	Paid for each child in average attendance.
	Teachers' Wages.	Fuel, etc.	Repairs.	Libraries and Apparatus.	New Buildings.	Other Objects.	Total.						
Hartford,	$386,445 23	$50,738 24	$24,975 30	$10,545 08	$61,617 16	$73,852 81	$608,173 82	$8,935 30	$759.289 78	5.04	3.17	$16 19	$27 92
New Haven,	557,105 55	74,262 56	27,221 65	4,038 75	197,127 50	177,368 67	1,037,124 68	12,989 20	1,366,673 31	6 66	2.44	15 96	27 51
New London,	148,126 84	17,874 97	14,270 58	1,701 41	59,543 12	20,853 36	262,370 28	5,362 17	281,638 94	4.55	2.61	12 26	21 92
Fairfield,	310,147 11	51,115 20	29,332 70	1,529 29	29,235 74	34,510 49	455,870 53	8,771 17	228,221 05	3.50	3.22	11 54	22 27
Windham,	79,838 55	10,831 17	3,366 93	503 53	....	9,637 58	104,177 76	1,596 76	25,536 95	4.76	3.61	10 85	23 41
Litchfield,	103,935 95	13,578 98	7,470 15	2,305 29	11,606 60	11,845 95	150,742 92	3,899 39	12,008 86	4.64	4.27	11 56	21 88
Middlesex,	66,559 74	7,386 67	2,499 16	730 34	16,588 83	15,634 99	109,399 73	3,895 78	133,330 67	3.63	2.51	11 91	20 46
Tolland,	49.501 02	5,139 40	2,197 83	989 13	7.295 87	3,848 32	68,971 57	1,365 14	37,302 73	6.69	5.07	11 70	19 97
The State,	$1,701,659 99	$230,927 19	$111,334 30	$22,342 82	$383,014 82	$347,552 17	$2,796,831 29	$46,814 91	$2,844,002 29	4.99	3.04	$13 83	24 90

* Of taxable property appropriated for Public Schools, in mills and 100ths.

† Of taxable property appropriated for Public Schools by town tax, in mills and 100ths.

HARTFORD COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Hartford,	53,230	12,175	10,212	8,676	8,009	460	3,423	2,039	6,942	6,885	83.8	56.7	82.8
Avon,	1,182	248	249	220	202	...	2	41	162	158	100.4	64.5	75.8
Berlin,	2,600	534	456	405	370	6	21	82	316	287	85.3	56.4	77.8
Bloomfield,	1,308	238	214	176	159	...	19	24	134	106	89.9	50.4	71.6
Bristol,	7,382	1,818	1,878	1,572	1,510	75	4	73	1,272	1,233	103.3	68.8	81.2
Burlington,	1,302	281	247	197	216	1	....	42	136	157	87.9	52.1	70.9
Canton,	2,500	609	643	494	565	25	....	60	457	506	105.5	79.0	90.9
East Granby,	661	121	120	99	94	...	4	....	81	71	99.1	62.8	78.7
East Hartford,	4,455	1,313	1,446	1,123	1,026	16	71	139	860	753	110.1	61.4	75.0
East Windsor,	2,890	714	656	540	485	...	....	65	411	370	91.8	54.6	76.1
Enfield,	7,199	1,533	1,102	953	905	31	301	130	765	761	71.8	49.7	82.1
Farmington,	3,179	698	681	614	584	24	7	87	555	461	97.5	72.7	84.8
Glastonbury,	3,457	715	645	560	515	3	71	88	444	422	90.2	60.5	80.5
Granby,	1,251	249	246	212	185	13	3	28	170	146	98.7	63.4	79.5
Hartland,	565	97	103	73	73	....	....	....	52	50	106.1	52.5	69.8
Manchester,	8,222	972	846	768	720	8	8	125	637	552	87.0	61.1	79.5
" Ninth District,	....	1,067	1,166	1,084	1,039	22	4	59	827	787	109.2	75.6	76.0
" Complete,	....	2,039	2,012	1,852	1,759	30	12	184	1,464	1,339	98.6	68.7	77.6
Marlborough,	582	87	84	74	64	2	1	9	51	41	96.5	52.8	66.6
New Britain,	19,007	4,825	3,342	2,837	2,892	250	1,286	197	2,287	2,344	69.2	47.9	80.8
Newington,	953	174	159	126	127	3	8	23	88	94	91.3	52.2	71.9
Plainville,	1,993	348	338	315	300	17	....	3	253	231	97.1	69.5	78.6
Rocky Hill,	1,069	200	181	156	142	3	13	30	113	97	90.5	52.5	70.4
Simsbury,	1,874	412	371	333	287	2	10	7	234	194	90.0	51.9	69.0
Southington,	5,501	1,136	1,105	1,089	992	80	....	33	859	807	97.2	73.3	80.0
South Windsor,	1,736	322	333	294	267	1	4	32	232	183	103.4	64.4	73.9
Suffield,	3,169	612	553	493	438	5	29	30	374	344	90.3	58.6	77.1
West Hartford,	1,930	483	433	404	408	8	66	75	337	328	89.6	68.8	81.8
Wethersfield,	2,271	386	397	347	318	11	1	9	288	267	102.8	71.8	83.4
Windsor,	2,954	624	641	564	525	6	9	78	437	403	102.7	67.3	77.1
Windsor Locks,	2,758	756	214	202	203	4	414	128	158	174	28.3	21.9	81.9
29 Towns.	147,180	33,747	29,061	25,000	23,620	1,076	5,779	3,736	19,932	19,212	86.1	57.9	80.5

NEW HAVEN COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
New Haven City,	....	20,481	16,169	13,322	13,322	961	2,085	3,691	12,700	12,700	78.9	62.0	95.3
" Westville,	....	400	363	322	301	....	....	36	279	279	90.7	69.7	89.5
" South,	....	69	68	47	47	....	2	8	36	37	98.5	52.8	77.6
" complete,	86,045	20,950	16,600	13,691	13,670	961	2,087	3,735	13,015	13,016	79.2	62.1	95.1
Ansonia,	10,342	2,725	2,359	2,219	2,215	68	118	348	1,917	1,771	86.5	67.6	83.1
Beacon Falls,	505	101	82	77	58	...	....	19	60	43	81.1	50.9	76.2
Bethany,	550	103	104	85	80	...	....	8	62	48	100.9	53.3	66.6
Branford,	4,460	961	971	921	841	14	.. .	60	740	660	101.0	72.8	79.4
Cheshire,	1,929	352	376	324	297	25	1	33	245	230	106.8	67.4	76.4
Derby,	5,969	1,581	834	726	698	30	427	320	612	520	52.7	35.8	79.4
East Haven,	955	171	137	119	106	3	15	13	82	76	80.1	46.1	70.2
Guilford,	2,780	498	562	474	438	28	....	63	346	316	112.8	66.4	72.5
Hamden,	3,882	888	755	669	633	4	52	190	501	471	85.0	54.7	74 6
Madison,	1,429	257	267	230	209	8	....	26	181	161	103.8	66.5	77.9
Meriden,	25,423	6,309	4,730	3,897	3,762	149	1,300	1,048	3,285	3,173	70 2	51.1	84.3
Middlebury,	566	145	145	129	120	2	2	16	89	83	100.0	59.3	69.0
Milford,	3,811	719	604	547	520	16	20	111	456	409	84.0	60.1	81.0
Naugatuck,	6,218	1,770	1,561	1,498	1,507	15	33	173	1,238	1,253	88.1	70.3	82.8
North Branford,	825	176	136	125	119	....	9	10	88	84	77 2	48.8	70.4
North Haven,	1,862	332	332	292	288	3	4	39	220	187	100.0	61.2	70.1
Orange,	4,537	1,247	1,190	1,047	994	9	20	152	858	810	95.4	66.8	81.7
Oxford,	902	226	197	182	140	3	....	22	118	84	87.1	44.6	62.7
Prospect,	445	105	99	81	78	....	2	9	56	47	94.2	49.0	64.7
Seymour,	3,300	725	624	591	569	20	....	128	489	467	86.0	65.9	82.4
Southbury,	1,089	259	226	184	154	2	20	23	119	86	87.2	39.5	60.6
Wallingford,	6,584	1,679	1,665	1,505	1,594	60	5	144	1,107	1,149	99.1	67.1	72.7
Waterbury,	....	1,015	864	736	762	3	15	60	555	492	85.1	51.5	69.8
" Centre,	....	9,012	6,331	5,361	5,482	304	1,470	1,211	4,568	4,086	70.2	48.0	79.8
" complete,	33,202	10,027	7,195	6,097	6,244	307	1,485	1,271	5,123	4,578	71.7	48.3	78 6
Wolcott,	522	135	130	100	84	2	....	5	61	58	96.2	44.0	64.6
Woodbridge,	926	166	160	136	124	3	6	22	104	98	96.3	60.8	77.6
26 Towns.	209,058	52,607	42,041	35,946	35,542	1,732	5,606	7,988	31,172	29,878	79.9	58.0	85 3

NEW LONDON COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
New London,	13,757	2,918	2,306	2.047	2,001	59	427	185	1,658	1,617	79.0	56.1	80.9
Norwich Town,	....	244	219	187	178	3	....	23	151	154	89.7	62.5	83.5
" Central,	....	1,382	1,158	1,042	1,062	18	134	90	921	940	83.7	67.3	88.4
" West Chelsea,	....	1,054	916	803	754	...	57	159	655	587	86.9	58.9	79.7
" Falls District,	....	288	198	180	170	1	90	....	143	88	68.7	40.1	66.0
" other Districts,	... .	2,154	1,086	961	965	3	609	192	773	790	50.4	36.2	81.1
" complete,	23,048	5,122	3,577	3,173	3,129	25	890	464	2,643	2,559	69.8	50.7	82.5
Bozrah,	1,005	191	186	144	145	3	1	15	118	110	97.3	59.6	78.8
Colchester,	2,988	485	482	407	364	5	18	33	320	293	99.3	63.1	79.5
East Lyme,	2,048	350	359	318	307	2	....	29	270	206	102.5	68.0	76.1
Franklin,	585	85	90	77	68	...	1	5	57	51	105.8	63.5	74.4
Griswold,	3,113	784	746	614	551	3	9	65	445	382	95.1	52.7	70.9
Groton,	5,539	1,055	984	876	813	25	13	150	704	608	93.2	62.1	77.6
Lebanon,	1,670	333	326	266	219	8	....	34	198	170	97.8	55.2	75.8
Ledyard,	1,183	282	281	251	196	2	....	26	188	137	99.6	57.6	72.7
Lisbon,	548	112	110	105	95	3	...	7	73	66	98.2	62.0	69.5
Lyme,	977	163	161	133	112	...	....	7	93	82	98.7	53.6	71.4
Montville,	2,344	631	642	553	514	8	....	45	399	403	101.7	63.5	75.1
North Stonington,	1,463	313	309	267	235	7	6	18	209	192	98.7	64.0	79.8
Old Lyme,	1,319	217	232	166	172	6	24	13	152	124	106.9	63.5	81.5
Preston,	2,555	620	626	585	518	13	25	32	421	400	100.9	66.2	74.4
Salem,	481	114	104	102	71	4	2	16	78	56	91.2	58.7	77.4
Sprague,	1,106	349	287	238	230	8	88	20	177	168	82 2	49.4	73.7
Stonington,	7,184	1,594	1,300	1,161	1,091	38	339	32	952	872	81.5	57.2	80.9
Voluntown,	1,060	241	274	222	190	6	1	22	167	146	113 6	64.9	75.9
Waterford,	2,661	578	520	425	366	5	10	49	287	248	89.9	46.2	67.6
21 Towns.	76,634	16,537	13,902	12,130	11,387	230	1,854	1,267	9,609	8,890	84.0	55.9	78.6

FAIRFIELD COUNTY.

TOWNS.	Population. 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Bridgeport,	48,866	13,629	9,024	8,316	7,981	337	1,554	3,051	7,217	6,528	66.2	50.4	84.3
Danbury,	19,473	4,619	3,127	2,857	2,834	104	1,012	896	2,393	2,342	67.6	51.2	83.2
Bethel,	3,401	745	739	677	659	5	2	115	545	563	99.1	74.3	82.9
Brookfield,	989	209	179	169	171	...	6	28	107	97	85.6	48.8	60.0
Darien,	2,276	350	272	247	233	...	31	59	176	164	77.7	48.5	70.8
Easton,	1,001	188	151	145	118	1	7	9	89	72	80.3	42.8	61.2
Fairfield,	3,868	866	817	686	580	9	36	90	475	401	94.3	50.5	69.1
Greenwich,	10,131	2,298	,021	1,633	1,507	...	296	41	1,147	1,035	87.9	47.4	69.4
Huntington,	4,006	1,029	873	827	786	17	70	108	656	558	84.8	69.5	75.2
Monroe,	994	186	189	164	166	3	6	24	105	101	101.6	55.3	62.4
New Canaan,	2,701	600	515	514	515	5	62	88	354	291	85.8	53.7	62.6
New Fairfield,	670	146	150	132	127	...	1	15	87	72	102.7	54.5	61.3
Newtown,	3,539	670	495	445	404	14	97	61	320	275	73.8	44.4	70.0
Norwalk,	17,747	4,293	3,390	2,895	2,787	72	634	754	2,396	2,290	78.9	54.5	82.4
Redding,	1,546	235	203	178	185	1	22	17	118	113	86.3	49.1	63.6
Ridgefield,	2,235	480	521	441	422	16	6	8	343	226	108.5	59.2	65.9
Sherman,	668	110	122	89	90	6	10	3	54	50	110.9	47.2	58.1
Stamford,	15,700	4,071	3,388	2,934	2,732	148	575	914	2,340	2,047	83.2	53.8	77.4
Stratford,	2,608	614	505	450	415	5	42	72	323	292	82.2	50.0	71.0
Trumbull,	1,453	299	250	219	228	...	2	48	156	158	83.6	52.5	70.2
Weston,	772	149	140	128	121	...	4	2	89	75	93.9	55.0	65.8
Westport,	3,715	787	632	537	499	4	35	45	368	333	80.3	44.5	67.6
Wilton,	1,722	372	334	294	276	4	10	17	194	166	89.7	48.3	63.1
23 Towns.	150,081	36,945	28,037	24,977	23,836	751	4,520	6,465	20,052	18,249	75.8	51.8	78.4

WINDHAM COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Brooklyn,	2,628	501	364	247	269	3	225	142	191	201	72.6	39.1	75.9
Ashford,	778	132	145	115	107	3	1	14	75	71	109.8	55.3	65.7
Canterbury,	947	168	190	166	129	10	...	12	128	98	113.0	67.2	76.6
Chaplin,	542	98	85	61	67	4	2	11	52	54	86.7	54.0	82.8
Eastford,	561	127	137	118	103	3	...	18	92	79	107.8	67.3	77.3
Hampton,	632	127	141	120	106	9	...	...	89	83	111.0	67.7	76.1
Killingly,	7,027	1,473	1,323	1,100	1,059	54	138	111	880	833	89.8	58.1	79.3
Plainfield,	4,582	1,109	968	812	769	8	36	101	596	626	87.2	55.0	77.2
Pomfret,	1,471	270	269	214	190	3	6	10	152	142	99.6	54.4	72.7
Putnam,	6,512	1,517	700	613	581	53	754	116	523	484	46.1	33.1	84.3
Scotland,	506	92	84	72	69	2	...	...	61	53	91.3	61.9	80.8
Sterling,	1,051	275	255	233	206	..	...	30	179	147	92.7	59.2	74.2
Thompson,	5,580	1,316	862	530	483	6	511	283	411	363	65.5	29.4	76.4
Windham,	10,032	1,964	1,304	1,100	1,104	74	918	234	878	904	66.3	45.3	80.8
Woodstock,	2,309	430	393	324	263	7	18	24	253	200	91.3	52.6	77.1
15 Towns.	45,158	9,599	7,220	5,825	5,505	239	2,609	1,106	4,560	4,338	75.2	46.3	78.5

LITCHFIELD COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Litchfield.	3,304	696	633	537	465	32	14	50	459	401	90.9	61.7	85.8
Barkhamsted,	1,130	224	207	148	144	2	...	10	106	101	92.4	46.2	70.8
Bethlehem,	543	100	87	71	65	6	2	15	57	41	87.0	49.0	72.0
Bridgewater,	617	121	133	113	91	3	...	...	85	64	109.9	61.5	73.0
Canaan,	970	171	154	137	131	1	...	6	107	95	90.0	59.0	75.3
Colebrook,	1,098	202	200	184	145	4	...	20	136	103	99.0	59.1	72.6
Cornwall,	1,283	243	250	211	179	2	8	31	175	139	102.8	64.6	80.5
Goshen,	972	183	180	149	112	...	...	9	104	73	98.3	48.3	67.8
Harwinton,	943	268	207	174	146	...	...	28	122	101	77.2	41.6	69.6
Kent,	1,383	261	272	220	223	12	15	4	158	150	104.2	59.0	69.5
Morris,	584	122	119	102	76	6	4	16	81	51	97.5	54.0	73.0
New Hartford,	3,160	712	339	314	333	...	214	84	239	250	47.6	34.3	75.5
New Milford,	3,917	782	757	617	532	18	40	70	456	414	96.8	55.6	73.9
Norfolk,	1,546	309	339	276	260	4	11	38	197	186	109.7	61.9	71.4
North Canaan,	1,683	372	326	275	264	15	9	24	220	219	87.6	59.0	81.4
Plymouth,	2,147	438	430	384	398	7	...	23	315	304	98.1	70.6	79.1
Roxbury,	936	193	195	164	141	...	14	9	114	87	101.0	52.0	65.9
Salisbury,	3,420	796	635	525	481	27	126	84	382	352	79.7	46.1	72.9
Sharon,	2,149	407	434	370	320	25	28	16	260	198	106.6	56.2	66.3
Thomaston,	3,278	726	655	594	563	13	4	80	506	485	90.2	68.2	85.6
Torrington,	6,048	1,894	1,311	1,075	1,150	75	618	308	975	929	69.1	50.2	85.5
Warren,	477	112	97	82	74	1	...	15	56	48	86.6	46.4	66.6
Washington,	1,633	325	353	282	272	8	43	38	204	181	108.6	59.2	69.4
Watertown,	2,323	532	522	431	429	15	4	26	327	299	98.1	58.8	72.7
Winchester,	6,183	1,465	857	791	797	3	351	158	638	615	58.4	42.7	78.9
Woodbury,	1,815	380	368	293	257	9	32	37	198	160	96.8	47.1	65.0
26 Towns.	53,542	12,034	10,060	8,519	8,048	288	1,537	1,199	6,677	6,046	83.5	52.8	76.7

MIDDLESEX COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Middletown,	....	1,228	1,344	1,168	1,098	145	25	62	896	796	109.4	68.8	74.6
" City,	....	1,741	1,206	1,121	1,061	125	678	314	987	916	69.2	54.6	87.2
" complete,	15,205	2,969	2,550	2,289	2,159	270	703	376	1,883	1,712	85.8	60 5	80.8
Haddam,	2,095	436	353	319	303	5	55	63	246	216	80.9	52.9	74.2
Chatham,	1,949	371	357	306	306	9	2	12	242	235	96.2	64.2	77.9
Chester,	1.301	279	264	231	208	2	....	31	190	176	94.6	65 5	83.3
Clinton,	1,384	239	29	27	19	....	205	....	18	15	12.1	6.9	71.7
Cromwell,	1,987	493	458	402	372	....	10	63	298	278	92 9	58.4	74.4
Durham,	856	172	161	150	142	9	....	7	108	91	93.6	57.8	68.1
East Haddam,	2,599	478	448	413	365	12	9	28	311	267	93.7	60.4	74 2
Essex,	2,035	348	305	292	282	....	13	14	232	220	87.6	64.9	78 7
Killingworth,	582	111	109	98	86	....	1	10	70	66	98.1	61.2	73 9
Middlefield,	1,002	180	164	145	141	....	2	12	115	103	91.1	60.5	76.2
Old Saybrook,	1,484	252	246	223	205	....	15	36	177	139	97.6	62.6	73.8
Portland,	4,687	1,044	718	644	618	14	224	113	539	519	68 7	50.6	83.8
Saybrook,	1,484	264	284	261	265	14	9	....	234	185	107.5	79.3	79.6
Westbrook,	874	154	145	125	123	....	....	....	103	81	94.1	59.7	74.1
15 Towns.	39,524	7,790	6,591	5,925	5,594	335	1.248	765	4,766	4,303	84.6	58.2	78.7

TOLLAND COUNTY.

TOWNS.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Tolland,	1,037	224	212	193	153	1	4	16	146	125	94.6	60.4	78.3
Andover,	401	67	53	41	41	2	3	12	31	30	79.1	45.5	74.3
Bolton,	452	92	78	74	56	....	....	20	52	39	84.7	49 4	70.0
Columbia,	740	136	155	143	115	4	3	6	100	81	113 9	66.5	70.1
Coventry,	1,875	342	367	316	272	15	14	4	231	198	107.3	62.7	72.9
Ellington,	1,539	342	262	228	217	6	30	41	199	188	76.6	56.2	86.9
Hebron,	1,039	217	231	186	155	8	3	25	143	124	106.4	61.5	78.2
Mansfield,	1,911	338	355	295	281	7	7	9	219	185	105.0	59.7	70.1
Somers,	1.407	265	291	232	234	14	7	20	194	176	109.8	69 8	79.3
Stafford,	4,535	1,029	772	662	646	25	200	132	562	539	75.0	53.4	84 1
Union,	431	87	104	77	76	7	....	....	56	54	119.5	63.2	71.8
Vernon,	8,808	1,918	1,494	1,355	1,248	102	397	217	1,148	1,093	77.8	58.4	86.0
Willington,	906	213	199	180	177	7	9	33	137	126	93 4	61.7	73.6
13 Towns.	25,081	5,270	4,573	3,982	3,671	198	677	535	3,218	2,958	86.7	58.5	80.7

SUMMARY BY COUNTIES.

COUNTIES.	Population, 1890.	Enumerated October, 1895.	Registered.				In Private Schools.	In no School.	Average Attendance.		Per cent. who attended some part of the year.	Per ct. of attendance on basis of enumeration.	Per ct. of attendance on basis of registration.
			Different Scholars.	Winter.	Summer.	Over 16.			Winter.	Summer.			
Hartford,..................	147,180	33,747	29,061	25,000	23,620	1,076	5,779	3,736	19,932	19,212	86.1	57.9	80.5
New Haven,............	209,058	52,607	42,041	35,946	35,542	1,732	5,606	7,988	31,172	29,878	79.9	58.0	85.3
New London,...........	76,634	16,537	13,902	12,130	11,387	230	1,854	1,267	9,609	8,890	84.0	55.9	78.6
Fairfield,.......	150,081	36,945	28,037	24,977	23,836	751	4,520	6,465	20,052	18,249	75.8	51.8	78.4
Windham,..............	45,158	9,599	7,220	5,825	5,505	239	2,609	1,106	4,560	4,338	75.2	46.3	78.5
Litchfield,..............	53,542	12,034	10,060	8,519	8,048	288	1,537	1,199	6,667	6,046	83.5	52.8	76.7
Middlesex,.............	39,524	7,790	6,591	5,925	5,594	335	1,248	765	4,766	4,303	84.6	58.2	78.7
Tolland,................	25,081	5,270	4,573	3,982	3,671	198	677	535	3,218	2,958	86.7	58.5	80.7
The State.	746,258	174,529	141,485	122,304	117,203	4,849	23,830	23,061	99,976	93,874	81.0	55.5	80.9

HARTFORD COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Hartford,	31	31	212	212	$145 40	$58 47	.....	.....	.....	.....	243	2	101	..
Avon,	..	..	8	8	.....	28 12	.....	.....	.....	.....	6	1		..
Berlin,	1	1	12	12	52 00	36 58	.....	.....	.....	.....	10	8	2	..
Bloomfield,	1	1	7	7	31 50	32 48	.....	.....	.....	.....	8	1	4	1
Bristol,	5	5	43	43	122 40	47 30	.....	.....	.....	.....	47	5	40	..
Burlington,	1	1	8	8	26 00	27 47	.....	.....	.....	.....	9	5	3	1
Canton,	2	1	12	13	125 61	40 81	.....	.....	.....	.....	11	..	4	..
East Granby,	..	..	6	6	.....	23 99	.....	1	.....	2	6	..	..	..
East Hartford,	3	3	27	27	70 66	35 59	.....	.....	.....	.....	30	2	5	..
East Windsor,	2	2	15	15	85 00	34 55	.....	.....	.....	.....	17	2	3	..
Enfield,	4	4	25	25	90 00	40 00	.....	.....	.....	.....	28	1	14	..
Farmington,	2	2	15	15	114 44	40 00	.....	.....	.....	.....	13	1	5	..
Glastonbury,	1	1	23	21	40 00	30 11	.....	.....	.....	.....	19	6	13	..
Granby,	..	..	11	11	.....	26 59	.....	2	.....	.....	11	..	..	..
Hartland,	2	2	6	6	20 00	19 00	2	6	.....	.....	8	..	..	1
Manchester,	1	1	20	20	135 00	43 02	.....	.....	.....	.....	21	1	10	..
" Ninth District,	2	2	19	19	184 20	66 66	.....	.....	.....	.....	21	.	13	..
" complete,	3	3	39	39	167 80	54 53	.....	.....	.....	.....	42	1	23	..
Marlborough,	..	..	4	4	.....	24 61	.....	.....	.....	2	.....	2	1	..
New Britain,	5	5	64	70	119 16	41 10	.....	.....	.....	.....	69	..	55	..
Newington,	..	..	4	4	.....	36 00	.....	.....	.....	.....	4	3	..	..
Plainville,	1	1	8	8	115 00	42 00	.....	.....	.....	.....	5	1	4	..
Rocky Hill,	..	..	5	5	.....	28 10	.....	.....	.....	.....	3	1	3	..
Simsbury,	2	1	11	12	44 50	29 85	.....	.....	.....	.....	9	5	..	..
Southington,	2	2	28	28	133 33	46 02	.....	.....	.....	.....	21	5	9	..
South Windsor,	1	1	11	11	32 00	40 00	.....	.....	.....	.....	12	1	3	..
Suffield,	3	3	15	15	37 33	35 02	.....	.....	.....	.....	16	4	6	..
West Hartford,	1	1	16	17	120 00	40 00	.....	.....	.....	.....	14	..	8	..
Wethersfield,	..	..	9	9	.....	42 66	.....	.....	.....	.....	6	4	4	..
Windsor,	2	2	16	16	80 00	38 84	.....	.....	.....	.....	13	..	7	..
Windsor Locks,	1	1	5	5	123 00	42 00	.....	.....	.....	.....	6	..	..	..
29 Towns.	76	74	665	672	$114 17	$45 50	2	9	.....	4	686	61	317	3

NEW HAVEN COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male	Female.	Male.	Female.	Male.	Female.				
New Haven City,	26	26	359	359	$160 00	$54 00	..	..	..	..	375	10	286	..
" Westville,	1	1	7	7	110 00	50 00	..	..	..	..	8	..	..	..
" South,	..	..	1	1	......	40 00	..	..	..	.	1	..	..	..
" complete,	27	27	367	367	$158 14	$53 88	..	..	..	..	384	10	286	..
Ansonia,	3	3	44	44	126 66	45 65	..	..	..	..	47	8	..	..
Beacon Falls,	1	1	2	2	36 00	28 00	..	..	..	1	..	2	..	..
Bethany,	1	1	3	3	32 00	29 61	..	..	..	..	4	1	..	..
Branford,	1	1	21	20	126 30	40 54	..	..	..	..	21	1	8	.
Cheshire,	1	1	12	12	85 00	31 25	..	..	..	2	13	..	1	..
Derby,	2	2	21	21	100 00	44 44	..	..	..	..	20	1	4	..
East Haven,	..	..	3	3	......	34 66	..	..	.	..	1	1	..	..
Guilford,	1	1	17	18	111 00	30 29	..	..	..	6	19	1	6	..
Hamden,	1	1	18	18	40 00	38 22	..	..	..	..	19	3	4	..
Madison,	2	1	9	10	28 66	33 02	..	..	..	..	10	..		..
Meriden,	10	10	92	92	137 00	48 47	..	..	..	..	96	1	29	..
Middlebury,	..	..	4	4	......	31 79	..	..	..	..	2	..	1	..
Milford,	1	1	14	14	126 31	37 14	..	..	..	..	14	1	4	..
Naugatuck,	3	3	36	36	126 66	46 53	..	..	..	..	33	2	21	..
North Branford,	..	..	6	6	......	31 00	..	1	..	..	6	2	2	..
North Haven,	..	..	10	10	......	35 76	..	..	..	..	9	2	3	..
Orange,	1	1	33	33	178 40	45 01	..	..	..	..	34	3	23	..
Oxford,	2	1	7	8	25 33	24 00	..	..	1	8	9	2	1	..
Prospect,	..	..	4	4	......	25 00	..	..	..	3	3	2	2	..
Seymour,	2	2	13	13	91 00	40 53	..	..	..	..	14	..	8	..
Southbury,	..	..	7	7	......	26 21	..	..	..	2	5	2	2	..
Wallingford,	3	3	42	42	110 00	39 16	..	..	..	..	42	6	15	..
Waterbury,	1	1	21	21	60 00	40 00	..	..		..	21	5	7	..
" Centre,	11	11	121	135	124 09	54 40	..	..	..	..	132	10	32	..
" complete,	12	12	142	156	$118 74	$52 37	..	..	..	..	153	15	39	..
Wolcott,	..	..	6	6	......	24 00	.	..	..	6	2	2	..	..
Woodbridge,	..	..	6	6	......	36 66	..	..	..	..	5	..	3	..
26 Towns,	74	72	939	955	$128 12	$47 85	..	1	1	28	965	68	462	..

NEW LONDON COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
New London,	2	2	51	51	$105 00	$45 95	..	..	..	..	53	3	4	..
Norwich Town,	1	1	4	4	80 00	36 25	..	..	..	..	5	..	3	..
" Central,	2	2	30	30	130 00	50 00	..	..	..	..	30	2	17	..
" West Chelsea,	1	1	21	22	100 00	36 66	..	..	..	..	21	1	6	..
" Falls District,	1	1	4	4	90 00	40 00	..	..	..	..	4	2	2	..
" other Districts,	3	3	30	30	88 33	38 53	..	..	..	..	33	..	15	..
" complete,	8	8	89	90	99 37	41 89	..	..	..	..	93	5	43	..
Bozrah,	2	1	5	6	30 00	24 90	..	1	..	2	7	..	1	..
Colchester,	2	..	15	16	29 16	30 66	..	..	..	8	9	4	3	..
East Lyme,	3	2	9	10	49 60	29 12	..	1	..	1	5	..	4	..
Franklin,	1	..	6	7	26 00	24 30	..	..	..	6	5	1	..	..
Griswold,	4	3	18	19	55 60	32 32	..	1	1	8	21	3	7	..
Groton,	4	4	20	19	60 91	38 56	..	..	..	..	23	3	4	..
Lebanon,	3	3	12	11	29 94	28 34	..	..	..	2	13	1	3	..
Ledyard,	2	..	12	13	25 00	19 83	..	11	2	2	12	5	1	..
Lisbon,	1	..	5	6	20 00	19 26	1	6	..	..	4	4	1	..
Lyme,	3	1	4	6	18 38	19 06	3	5	..	1	7	..	..	..
Montville,	3	2	12	14	42 20	29 60	..	1	..	7	12	3	2	..
North Stonington,	4	1	8	10	30 40	27 16	..	..	..	5	8	7	3	..
Old Lyme,	2	1	5	5	72 22	27 60	..	3	..	..	7	1	3	.
Preston,	6	5	11	12	41 27	27 21	..	2	2	4	17	..	6	..
Salem,	2	3	5	3	20 00	20 75	3	4	..	..	6	4	1	..
Sprague,	1	1	6	6	65 00	35 00	..	1	..	..	7	..	2	..
Stonington,	4	4	30	31	92 08	36 61	..	1	..	1	30	5	8	..
Voluntown,	1	1	7	7	40 00	24 37	..	..	..	7	7	3	2	..
Waterford,	4	4	10	10	34 85	30 55	..	..	..	3	12	1	4	..
21 Towns.	62	46	340	352	$55 49	$35 34	7	37	5	57	358	53	102	..

FAIRFIELD COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Bridgeport,....................	7	7	161	162	$148 57	$59 55	..	..	..	..	168	14	25	..
Danbury,........................	4	4	67	67	116 00	44 60	..	..	..	..	62	6	5	..
Bethel,........................	1	1	15	16	95 00	39 50	..	..	..	..	12	4	2	..
Brookfield,....................	1	1	7	7	34 00	30 71	..	..	..	..	8	..	..	..
Darien,........................	2	2	5	5	70 00	46 00	..	..	..	..	7	..	..	..
Easton,........................	1	1	7	7	23 60	23 81	..	..	1	7	3	3	..	..
Fairfield,.....................	7	7	13	13	57 14	38 46	..	..	..	..	20	..	1	..
Greenwich,.....................	4	4	33	33	65 00	40 90	..	..	..	..	37	1	17	..
Huntington,....................	3	2	22	22	72 80	37 45	..	..	..	..	21	2	7	.
Monroe,........................	..	..	7	7	......	30 00	..	..	..	..	7	1	..	..
New Canaan,....................	4	4	13	13	48 00	36 30	..	..	..	..	12	5	5	..
New Fairfield,.................	1	1	5	5	32 00	29 20	..	..	..	..	6	4	..	..
Newtown,.......................	3	3	19	19	48 66	29 43	..	..	..	5	20	4	3	..
Norwalk,.......................	9	9	63	63	98 44	43 93	..	1	..	..	71	2	26	..
Redding,.......................	1	1	8	8	28 00	26 20	..	..	..	4	6	5	2	..
Ridgefield,....................	2	2	16	16	62 50	32 03	..	..	..	1	18	6	9	1
Sherman,.......................	3	1	3	5	28 00	23 97	..	..	2	5	4	2	..	..
Stamford,......................	10	10	69	69	116 66	48 27	..	..	..	..	79	5	50	..
Stratford,.....................	1	1	10	10	100 00	42 40	..	..	..	..	9	2	7	..
Trumbull,......................	..	..	7	7	.....	36 28	..	..	..	..	6	..	1	..
Weston,........................	3	3	2	2	26 59	26 38	..	..	..	..	5	1	1	..
Westport,......................	2	2	11	11	41 25	35 90	..	..	..	3	13	1	..	..
Wilton,........................	2	2	8	8	33 00	31 21	..	..	..	1	4	2	1	..
23 Towns.	71	68	571	575	$80 55	$45 69	..	1	3	26	598	70	162	1

WINDHAM COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Brooklyn,	1	..	10	12	$30 00	$38 70	..	..	..	..	10	..	1	..
Ashford,	1	..	8	9	17 66	16 89	1	8	..	1	7	3	2	..
Canterbury,	..	..	11	11	......	21 18	..	3	..	8	10	1	..	..
Chaplin,	1	..	2	3	20 00	28 80	1	1	..	..	2	1	2	..
Eastford,	..	..	6	6	......	20 83	..	3	..	2	3	2	1	..
Hampton,	..	..	7	7	......	22 71	..	..	..	7	4	5	..	1
Killingly,	9	9	23	23	59 04	39 42	..	..	..	..	30	3	3	..
Plainfield,	4	4	17	17	65 42	32 44	..	..	..	..	16	3	4	..
Pomfret,	4	3	3	5	39 28	32 87	..	..	..	..	6	..	2	..
Putnam,	2	2	18	18	117 75	43 27	..	..	..	..	18	1	2	..
Scotland,	..	..	5	5	......	25 35	..	..	..	2	4	1	1	..
Sterling,	2	2	6	6	30 97	25 87	..	..	..	4	4	..	1	..
Thompson,	3	3	14	14	37 04	38 02	..	..	..	..	8	1	..	..
Windham,	7	6	40	40	90 89	48 50	..	..	..	..	30	5	33	..
Woodstock,	5	1	11	15	30 21	27 05	..	..	1	4	10	4	1	..
15 Towns.	39	30	181	191	$59 55	$35 66	2	15	1	28	162	30	53	1

LITCHFIELD COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Litchfield,	3	3	19	19	$68 00	$30 00	..	..	..	..	16	1	6	..
Barkhamsted,	2	2	7	7	26 00	21 14	1	7	..	..	3	3	..	..
Bethlehem,	..	..	5	5	.....	23 16	..	1	..	2	5	2	..	..
Bridgewater,	1	..	5	4	20 00	27 44	1	..	..	3	4	..	..	..
Canaan,	2	1	5	7	20 93	22 41	1	1	1	6	4	6	..	..
Colebrook,	1	..	8	9	29 00	23 20	..	1	..	8	10	3	1	..
Cornwall,	..	..	11	11	......	24 05	..	3	..	3	15	..	1	..
Goshen,	..	.	9	7	......	21 37	..	5	..	3	4	.	..	..
Harwinton,	..	..	8	6	......	25 06	..	..	..	6	7	..	..	..
Kent,	5	3	8	10	28 25	23 66	1	5	..	..	9	2	..	..
Morris,	..	..	6	6	......	25 66	..	..	..	2	4	3	..	..
New Hartford,	3	3	11	11	66 00	31 27	..	..	..	..	10	..	..	1
New Milford,	2	1	21	22	80 00	32 46	..	..	..	..	12	2	1	..
Norfolk,	2	2	10	12	48 50	27 07	1	2	1	5	9	6	3	..
North Canaan,	2	1	7	8	30 66	33 31	..	..	..	..	9	3	..	..
Plymouth,	1	1	14	14	100 00	38 29	..	..	..	..	14	3	13	..
Roxbury,	1	..	6	6	26 00	25 30	..	..	..	4	3	..	..	..
Salisbury,	2	2	16	16	81 25	34 26	..	..	..	..	18	..	7	1
Sharon,	2	2	16	16	55 00	24 93	1	8	.	2	16	6	1	..
Thomaston,	2	2	13	13	79 11	42 78	..	..	..	..	15	3	4	..
Torrington,	1	1	29	29	180 00	42 69	..	..	..	..	28	3	11	..
Warren,	2	1	3	4	25 33	20 00	..	4	1	..	3	1	1	..
Washington,	3	5	10	9	27 50	26 15	..	1	4	6	8	6	4	..
Watertown,	2	2	12	12	68 44	33 69	..	..	..	..	11	4	3	..
Winchester,	..	..	27	27	......	50 17	..	..	..	..	23	3	11	..
Woodbury,	2	..	12	14	30 50	26 23	..	1	..	5	10	3	..	..
26 Towns.	41	32	298	304	$52 73	$32 24	6	39	7	55	270	63	67	2

MIDDLESEX COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Middletown,	2	2	30	30	$35 66	$35 67	..	..	..	..	32	..	5	..
" City,	2	2	26	26	90 00	50 24	..	..	..	..	22	2	11	..
" complete,	4	4	56	56	62 83	42 43	..	..	..	..	54	2	16	..
Haddam,	1	1	11	11	66 66	29 08	..	..	..	1	12	3	2	..
Chatham,	1	1	12	12	77 77	27 79	..	1	..	..	10	3	6	..
Chester,	..	..	6	6	......	36 86	..	..	..	..	6	..	3	..
Clinton,	..	..	2	2	......	30 00	..	..	..	..	2	..	..	..
Cromwell,	1	1	10	10	36 00	33 85	..	..	..	1	8	3	1	..
Durham,	1	1	5	5	44 00	26 40	..	..	..	1	6	1	..	1
East Haddam,	3	2	15	16	30 40	26 89	..	1	1	6	18	5	3	..
Essex,	1	1	8	8	42 37	37 29	..	..	..	..	9	3	3	1
Killingworth,	..	..	8	8	......	22 75	..	2	..	5	6	3	..	1
Middlefield,	..	..	5	5	......	32 20	..	..	..	1	5	1	3	..
Old Saybrook,	2	2	5	5	73 11	37 89	..	..	1	1	5	..	3	..
Portland,	2	2	17	17	120 00	40 77	..	..	..	..	19	2	4	..
Saybrook,	1	1	6	7	105 55	35 33	..	..	..	..	7	1	4	..
Westbrook,	1	1	4	4	33 00	28 00	..	..	..	2	4	1	..	..
15 Towns.	18	17	170	172	$63 93	$35 46	..	4	2	18	171	28	48	3

TOLLAND COUNTY.

TOWNS.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Tolland,	4	3	7	8	$26 00	$26 80	..	..	..	..	10	1	1	..
Andover,	..	..	1	1	......	40 00	..	..	..	..	1	..	1	..
Bolton,	2	1	2	3	25 22	24 59	..	..	1	4	1	..	2	..
Columbia,	1	1	7	7	22 00	21 44	..	3	1	4	10	2	2	..
Coventry,	3	3	9	9	38 33	27 85	..	..	..	1	9	3	8	..
Ellington,	2	2	8	8	32 00	36 25	..	..	..	..	10	2	6	..
Hebron,	1	..	9	9	28 00	24 19	..	..	..	6	8	4	3	..
Mansfield,	4	2	10	12	26 51	25 83	..	..	..	2	12	1	8	1
Somers,	..	..	11	11	......	33 27	..	..	..	..	9	3	3	..
Stafford,	4	4	22	22	52 77	33 67	..	..	..	5	23	3	8	1
Union,	1	..	5	6	20 00	19 16	1	6	..	..	6	2	..	..
Vernon,	3	3	38	38	90 66	42 63	..	..	..	..	41	5	15	..
Willington,	3	3	6	6	22 26	23 22	1	3	2	2	8	..	..	..
13 Towns.	28	22	135	140	$39 37	$32 48	2	12	4	24	148	26	57	2

SUMMARY BY COUNTIES.

COUNTIES.	Male.		Female.		Average Wages per month.		No. of teachers whose average wages was $20 or less per mo.		No. of teachers whose av. wages was from $20 to $25 per month.		Continuously employed.	Beginners.	Attended Normal School.	No. of Teachers' Meetings.
	Winter.	Summer.	Winter.	Summer.	Male.	Female.	Male.	Female.	Male.	Female.				
Hartford,	76	74	665	672	$114 17	$45 50	2	9	..	4	686	61	317	3
New Haven,	74	72	939	955	128 12	47 85	..	1	1	28	965	68	462	..
New London,	62	46	340	352	55 49	35 34	7	37	5	57	358	53	102	..
Fairfield,	71	68	571	575	80 55	45 69	..	1	3	26	598	70	162	1
Windham,	39	30	181	191	59 55	35 66	2	15	1	28	162	30	53	1
Litchfield,	41	32	298	304	52 73	32 24	6	39	7	55	270	63	67	2
Middlesex,	18	17	170	172	63 93	35 46	..	4	2	18	171	28	48	3
Tolland,	28	22	135	140	39 37	32 48	2	12	4	24	148	26	57	2
The State.	409	361	3,299	3,361	$84 65	$42 34	19	118	23	240	3,358	399	1,268	12

SCHOOLS, SCHOOLHOUSES, AND LIBRARIES

HARTFORD COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	GRADED SCHOOLS.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
Hartford,	10	20	183	8,535	2	1	..	..	11	..	1	187.91	1
Avon,	7	7	8	245	1	..	..	..	..	1	..	180.00	..
Berlin,	9	9	13	505	4	..	..	..	.	..	..	179.76	..
Bloomfield,	8	8	8	214	..	..	..	..	..	1	..	179.68	..
Bristol,	12	14	40	1,968	1	1	2	..	2	..	1	188.61	..
Burlington,	9	9	9	330	..	..	..	..	..	3	..	173.33	..
Canton,	8	5	12	655	1	..	..	..	1	..	..	191.33	..
East Granby,	6	6	6	160	..	..	..	..	..	1	..	180.00	..
East Hartford,	10	11	28	1,118	3	1	..	3	..	..	1	180.00	..
East Windsor,	11	10	17	702	..	1	..	..	1	1	.	180.00	..
Enfield,	1	7	28	1,199	2	..	..	1	1	..	1	182.50	..
Farmington,	7	6	17	762	..	..	1	..	1	1	..	187.70	..
Glastonbury,	18	18	21	687	3	..	..	..	..	2	..	179.90	..
Granby,	10	10	11	361	1	..	..	..	.	1	..	180.00	..
Hartland,	8	8	8	240	..	..	..	..	..	6	..	180.00	..
Manchester,	8	8	20	871	4	..	..	..	1	..	..	190.00	..
" Ninth District,	1	1	38	1,100	..	..	..	..	1	.	..	189.00	..
" complete,	9	9	58	1,971	4	..	..	..	2	..	..	189.34	..
Marlborough,	4	4	4	116	..	..	..	..	..	2	..	180.00	..
New Britain,	1	11	68	3,142	..	1	2	2	4	..	1	195.00	3
Newington,	4	4	4	164	..	..	..	..	..	..	..	181.25	..
Plainville,	1	1	8	350	..	..	..	..	1	..	..	200.00	..
Rocky Hill,	4	4	5	184	1	..	..	..	..	..	..	180.00	..
Simsbury,	12	12	13	717	1	..	..	..	..	2	..	179.92	..
Southington,	1	12	30	1,392	1	1	..	1	1	..	1	180 00	..
South Windsor,	10	12	12	443	..	..	..	..	..	1	2	178 41	..
Suffield,	11	11	18	634	5	1	..	..	..	..	..	180.00	..
West Hartford,	1	8	15	450	3	..	..	..	..	..	1	185.00	..
Wethersfield,	6	7	9	398	..	1	..	..	..	..	1	190.00	..
Windsor,	10	12	17	700	1	2	..	..	..	..	2	180.88	..
Windsor Locks,	1	1	5	255	..	..	..	1	..	..	..	195.00	..
29 Towns,	209	256	675	28,597	34	10	5	8	25	22	12	185 96	4

HARTFORD COUNTY

TOWNS.	Schoolhouses.					Libraries.				
	Number.	No. Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Hartford,	20	..	..	....	$1,317,600 00	20	12,000	6	$490 00	2
Avon,	7	3	..	....	4,650 00	..	....	..	....	..
Berlin,	10	1	..	....	14,300 00	6	653	5	25 00	2
Bloomfield,	8	1	..	....	7,200 00	8	328	7	35 00	..
Bristol,	14	1	1	$8,298 49	104,000 00	13	4,500	12	135 00	1
Burlington,	9	1	..	....	3,350 00	2	45	..	....	1
Canton,	8	1	..	....	18,400 00	1	150	3	35 00	..
East Granby,	6	1	..	....	2,800 00	..	....	..	....	..
East Hartford,	13	..	1	1,000 00	48,400 00	6	639	7	55 00	1
East Windsor,	10	..	..	....	23,900 00	..	....	11	70 00	1
Enfield,	10	..	..	....	80,000 00	4	1,575	1	95 00	1
Farmington,	9	..	..	....	26,450 00	4	650	3	40 00	1
Glastonbury,	18	1	..	....	12,400 00	17	950	17	90 00	1
Granby,	10	..	..	....	6,900 00	2	....	3	20 00	3
Hartland,	8	1	..	....	1,450 00	..	...	1	5 00	..
Manchester,	8	1	..	....	36,000 00	8	4,000	8	60 00	..
" Ninth Dist.,	1	..	..	....	77,000 00	1	5,050	1	55 00	1
" complete,	9	1	..	....	113,000 00	9	9,050	9	115 00	1
Marlborough,	4	..	..	....	2,000 00	..	....	1	5 00	..
New Britain,	11	1	..	....	280,000 00	1	600	1	170 00	1
Newington,	4	2	..	....	4,500 00	4	395	4	20 00	1
Plainville,	1	..	..	....	10,900 00	..	....	1	20 00	1
Rocky Hill,	4	..	..	....	3,400 00	4	100	2	10 00	1
Simsbury,	12	3	..	....	21,800 00	..	....	1	5 00	1
Southington,	11	..	..	....	71,700 00	2	900	1	100 00	..
South Windsor,	11	..	..	....	8,400 00	12	800	10	60 00	..
Suffield,	11	..	..	....	26,500 00	6	496	2	10 00	1
West Hartford,	8	1	..	....	30,000 00	8	500	1	45 00	1
Wethersfield,	7	..	..	....	35,000 00	7	450	6	35 00	1
Windsor,	10	..	..	....	29,500 00	11	1,000	10	65 00	1
Windsor Locks,	2	..	..	....	25,000 00	1	362	..	....	1
29 Towns.	265	19	2	$9,298 49	$2,333,500 00	148	36,143	125	$1,755 00	25

NEW HAVEN COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	GRADED SCHOOLS.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
New Haven City,........	1	45	312	14,805	1	1	10	1	20	..	1	200.00	10
" Westville,...	1	1	7	325	..	..	..	..	1	..	..	200.00	..
" South,.......	1	1	1	60	..	..	..	.	..	..	..	180.00	..
" complete,....	3	47	320	15,190	1	1	10	1	21	..	1	199 93	10
Ansonia,..................	1	7	45	2,464	1	..	..	2	4	..	1	193.00	1
Beacon Falls,.............	1	2	3	116	1	..	..	..	..	..	..	186.66	..
Bethany,.................	5	4	4	128	..	..	..	.	..	..	..	179.87	..
Branford,................	1	8	20	979	1	..	1	1	1	..	1	190.00	..
Cheshire,................	12	13	13	420	..	..	..	..	.	2	1	181.53	..
Derby,...................	1	5	17	873	1	..	1	..	1	..	1	191.88	..
East Haven,..............	2	2	3	124	1	..	..	..	..	..	.	190 00	..
Guilford,................	10	11	19	713	2	..	..	1	..	2	1	186.05	..
Hamden,..................	1	13	19	763	4	1	.	1	..	..	..	190.00	..
Madison,.............. ..	1	11	12	281	1	..	..	..	..	2	1	177.08	..
Meriden,.................	12	13	94	5,482	2	1	3	1	7	..	1	200.00	1
Middlebury,..............	6	4	4	120	..	..	..	1	..	..	..	178.62	..
Milford,.................	1	5	13	550	..	..	..	.	1	..	..	190.00	..
Naugatuck,...............	6	6	34	1,736	1	..	..	..	2	..	.	199.61	..
North Branford,..........	7	5	6	183	1	..	..	..	..	..	..	177.83	..
North Haven,.............	8	7	10	344	1	1	..	..	..	..	..	180.00	..
Orange,..................	8	8	27	1,219	..	1	..	..	1	1	1	188.05	..
Oxford,..................	12	9	9	310	..	..	..	..	..	..	..	180.55	..
Prospect,................	1	4	4	98	..	..	..	..	..	1	..	135.00	..
Seymour,.................	1	6	14	813	..	..	..	..	1	..	1	190.00	..
Southbury,...............	9	7	7	219	..	..	..	..		1	..	180.00	.
Wallingford,.............	9	13	38	1,518	2	..	1	..	2	..	.	193.18	..
Waterbury,...............	10	10	22	972	2	1	1		1	.	.	197 04	..
" Center,.......	1	16	103	5,420	..	..	6	1	9	..	..	200.00	6
" complete,....	11	26	125	6,392	2	1	7	1	10	..	..	199.48	6
Wolcott,.................	1	6	6	150	..	..	..	..	..	..	.	180.00	..
Woodbridge,..............	1	6	6	206	..	..	..	..	..	1	..	180.00	..
26 Towns.	131	248	872	41,391	22	6	23	9	51	10	10	195.35	18

NEW HAVEN COUNTY

TOWNS.	SCHOOLHOUSES.					LIBRARIES.				
	Number.	No. Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. of Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
New Haven City,.....	45	7	..	....	$1,319,851 77	15	22,000	1	$805 00	2
" Westville,..	1	..	..	....	20,000 00	1	700	1	20 00	..
" South,......	1	..	..	....	4,000 00	..	....	..	....	..
" complete,...	47	7	..	....	$1,343,851 77	16	22,700	2	$825 00	2
Ansonia,.............	6	..	..	....	110,000 00	3	3,000	1	115 00	1
Beacon Falls,.........	3	..	..	....	4,500 00	.	....	..	....	..
Bethany,.............	4	1	..	....	1,450 00	4	117	4	20 00	..
Branford,.............	9	1	..	....	51,300 00	1	800	..	....	1
Cheshire,.............	12	..	..	....	6,600 00	3	100	1	5 00	1
Derby,..	4	2	..	....	53,400 00	2	1,574	1	45 00	..
East Haven,..........	3	..	1	$11,000 00	12,200 00	2	108	..	....	..
Guilford,.............	14	1	..	....	4,200 00	6	200	2	10 00	1
Hamden,.............	13	2	..	....	18,000 00	13	509	1	30 00	..
Madison,.............	13	2	..	....	11,625 00	11	522	1	60 00	2
Meriden,.............	20	1	..	....	333,363 25	12	5,000	12	270 00	..
Middlebury,..........	4	1	..	....	1,100 00	1	12	..	....	1
Milford,.............	5	..	..	....	12,000 00	1	330	..	....	1
Naugatuck,...........	9	1	1	9,042 42	168,800 00	1	800	1	55 00	1
North Branford,......	7	2	..	....	4,400 00	1	25	..	....	..
North Haven,.........	8	1	..	....	8,200 00	7	2,000	3	15 00	1
Orange,..............	11	2	..	....	53,100 00	1	200	1	40 00	..
Oxford,..............	11	3	..	....	1,950 00	6	90	1	5 00	1
Prospect,.............	4	2	..	....	1,200 00	1	50	1	5 00	1
Seymour,.............	7	..	..	....	58,800 00	1	405	1	35 00	1
Southbury,............	8	3	..	....	1,375 00	..	....	..	....	..
Wallingford,..........	13	..	..	....	59,000 00	4	545	2	75 00	1
Waterbury,...........	11	..	..	....	40,300 00	3	258	3	30 00	..
" Center,.....	15	..	..	....	543,933 00	16	1,000	1	310 00	1
" complete,...	26	..	..	....	$584,233 00	19	1,258	4	$340 00	1
Wolcott,.......... ...	6	..	.	....	2,000 00	..	....	..	....	..
Woodbridge,..........	6	1	..	....	4,400 00	6	1,463	1	30 00	..
26 Towns.	273	33	2	$20,042 42	$2,911,048 02	122	41,808	40	$1,980 00	17

NEW LONDON COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	Graded Schools. 2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.	Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
New London,	1	6	48	2,486	..	..	..	..	6	..	..	195.00	1
Norwich Town,	1	1	5	243	..	..	1	..	..	..	..	200.00	..
" Central,	1	6	30	1,395	..	2	3	..	1	..	..	195.00	..
" West Chelsea,	1	4	16	757	..	..	4	..	..	..	..	200.00	..
" Falls District,	1	1	5	349	..	..	..	1	..	..	..	195.00	..
" other Districts,	8	8	29	1,152	2	..	..	..	2	1	..	200.00	3
" complete,	12	20	85	3,896	2	2	8	1	3	1	..	197.94	3
Bozrah,	7	7	7	287	..	..	..	..	..	1	..	180.00	..
Colchester,	12	11	17	614	..	1	1	..	..	2	..	174.23	..
East Lyme,	9	9	12	490	1	1	..	..	..	1	..	179.00	..
Franklin,	7	7	7	164	..	..	..	..	..	4	..	180.71	..
Griswold,	13	13	20	755	1	..	..	..	1	4	..	184.00	..
Groton,	11	11	24	1,077	2	..	1	2	..	..	..	180 00	..
Lebanon,	16	15	15	588	..	..	..	..	..	5	..	170.33	..
Ledyard,	14	13	13	350	..	..	..	..	..	..	..	180.15	..
Lisbon,	6	6	6	120	..	..	..	..	..	2	..	180.00	..
Lyme,	7	7	7	265	..	..	..	..	..	1	..	182.85	..
Montville,	12	12	16	719	..	2	..	..	..	1	..	182.18	..
North Stonington,	15	15	15	457	..	..	..	..	..	..	..	180.00	..
Old Lyme,	8	5	7	233	..	1	..	..	..	..	..	140.00	..
Preston,	11	11	17	690	1	1	1	..	..	..	..	187.05	..
Salem,	7	7	7	160	..	..	..	..	..	4	..	165.71	..
Sprague,	5	5	7	385	2	..	..	..	..	..	..	172.92	..
Stonington,	15	14	35	1,337	1	1	1	..	2	4	..	180.28	..
Voluntown,	8	6	8	294	..	1	..	..	..	..	..	171.87	..
Waterford,	11	11	14	486	3	..	..	..	..	1	..	179.14	..
21 Towns.	207	211	387	15,853	13	10	12	3	12	31	..	184.53	4

NEW LONDON COUNTY

TOWNS.	Schoolhouses.					Libraries.				
	Number.	No. Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
New London, ...	6	..	1	$66,000 00	$320,000 00	6	3,831	1	$110 00	1
Norwich Town, ...	2	..	..	....	11,000 00	1	100	1	15 00	..
" Central, ...	6	..	..	....	170,000 00	1	569	1	65 00	1
" West Chelsea,	4	..	..	....	50,000 00	..	....	1	50 00	..
" Falls District,.	1	..	..	....	10,000 00	1	150	1	15 00	..
" other Districts,	9	..	..	....	80,900 00	3	1,829	3	45 00	..
" complete,	22	..	..	....	$321,900 00	6	2,648	7	$190 00	1
Bozrah, ...	7	..	..	....	4,400 00	..	....	..	....	..
Colchester, ...	11	3	..	. ...	5,250 00	6	806	4	20 00	1
East Lyme, ...	9	..	..	....	10,200 00	1	224	..	....	1
Franklin, ...	7	..	..	....	3,200 00	..	....	..	....	1
Griswold, ...	14	5	..	....	14,500 00	4	249	3	35 00	2
Groton, ...	12	1	..	....	25,400 00	6	254	2	15 00	2
Lebanon, ...	16	2	..	....	10,800 00	..	....	1	5 00	1
Ledyard, ...	14	1	..	....	3,500 00	2	....	1	5 00	1
Lisbon, ...	5	..	..	....	1,700 00	..	....	..	....	..
Lyme, ...	7	..	..	....	3,000 00	..	....	..	....	..
Montville, ...	14	4	..	....	8,025 00	5	387	2	25 00	1
North Stonington, ...	15	1	..	....	9,350 00	14	450	11	70 00	..
Old Lyme, ...	5	4	..	....	8,175 00	1	....	6	35 00	1
Preston, ...	11	..	..	....	16,500 00	2	191	..	....	..
Salem, ...	7	3	..	....	3,325 00	4	28	2	15 00	..
Sprague, ...	5	..	..	....	6,500 00	2	88	2	10 00	..
Stonington, ...	15	..	..	....	67,700 00	4	700	3	70 00	1
Voluntown, ...	8	2	..	....	6,000 00	1	95	1	10 00	..
Waterford, ...	11	1	..	....	7,800 00	2	100	..	....	..
21 Towns.	221	27	1	$66,000 00	$857,225 00	66	10,051	46	$615 00	14

FAIRFIELD COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	GRADED SCHOOLS.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
Bridgeport,	1	20	171	8,988	3	2	1	..	15	..	1	186.00	1
Danbury,	13	18	68	3,235	2	1	2	..	4	.	1	198.36	1
Bethel,	1	7	17	736	..	.	.	1	1	..	1	198.00	..
Brookfield,	8	8	8	312	..	..	..	..	..	1	..	184.37	..
Darien,	4	4	7	315	1	1	..	..	..	..	..	200.00	..
Easton,	8	8	8	222	..	..	..	..	..	4	.	197.50	..
Fairfield,	1	14	20	789	2	2	..	..	..	..	..	200.00	..
Greenwich,	20	19	37	1,805	3	..	..	1	1	..	..	200.00	..
Huntington,	1	10	24	936	..	..	..	..	1	..	..	187.33	..
Monroe,	7	7	7	256	..	..	..		..	1	..	180.00	..
New Canaan,	1	11	16	643	..	..	..	..	1	2	..	189.75	..
New Fairfield,	6	6	6	164	..	..	..	..	..	1	..	181.66	..
Newtown,	21	19	22	845	1	1	..	..	..	5	..	193.95	..
Norwalk,	11	11	61	3,118	1	2	..	..	4	..	..	200.00	1
Redding,	10	9	9	269	..	..	..	..	..	2	..	175.00	..
Ridgefield,	14	14	19	506	.	1	1	..	..	..	.	194.81	..
Sherman,	6	6	6	147	..	..	..	..	..	4	.	179.16	..
Stamford,	1	20	71	3,038	1	..	..	..	7	1	1	197.22	1
Stratford,	3	3	10	403	..	..	..	..	1	..	..	196.00	..
Trumbull,	1	7	7	256	..	..	..	..	.	..	..	190.00	..
Weston,	5	5	5	244	..	..	..	..	..	..	..	181.00	..
Westport,	10	10	13	562	3	..	..	..	..	..	..	200.00	..
Wilton,	10	9	10	314	1	..	..	..	..	1	.	185.40	..
23 Towns.	163	245	622	28,103	18	10	4	2	35	22	4	192.71	4

FAIRFIELD COUNTY

TOWNS.	SCHOOLHOUSES.					LIBRARIES.				
	Number.	Number Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Bridgeport,...........	20	2	..	....	$656,914 00	3	1,300	1	$435 00	1
Danbury,............	19	..	1	$26,000 00	204,100 00	3	500	3	140 00	1
Bethel,...............	7	..	..	....	45,000 00	1	236	1	50 00	..
Brookfield,..........	7	1	..	....	5,400 00	..	....	..	....	..
Darien,............	4	..	..	....	9,300 00	2	200	2	10 00	..
Easton,...............	8	1	..	....	1,900 00	2	49	..	....	..
Fairfield,............	14	4	..	....	23,050 00	8	511	1	85 00	3
Greenwich,...........	19	1	..	....	297,600 00	3	1,600	6	65 00	2
Huntington,...........	11	1	..	....	44,100 00	1	350	1	85 00	1
Monroe,..............	7	1	..	....	5,300 00	4	300	1	5 00	..
New Canaan,.........	11	..	..	....	10,000 00	7	409	..	....	1
New Fairfield,........	6	1	..	....	2,150 00	..	....	..	....	..
Newtown,............	21	3	..	....	8,190 00	15	200	..	....	1
Norwalk,.............	11	..	..	....	114,900 00	7	3,108	8	150 00	2
Redding,..............	9	..	..	....	3,800 00	2	70	1	5 00	..
Ridgefield,...........	14	1	..	....	12,450 00	17	2,100	3	20 00	1
Sherman,............	6	3	..	....	1,500 00	..	....	..	....	..
Stamford,.............	20	1	.	....	155,500 00	7	1,505	1	160 00	1
Stratford,............	3	..	..	....	25,900 00	3	200	3	20 00	1
Trumbull,............	7	..	1	800 00	3,900 00	..	....	1	30 00	..
Weston,..............	5	1	..	....	1,350 00	..	....	1	5 00	..
Westport,............	10	..	1	2,439 51	11,250 00	8	444	2	10 00	1
Wilton,...............	9	..	..	....	6,400 00	6	271	2	15 00	1
23 Towns.	248	21	3	$29,239 51	$1,649,954 00	99	13,353	38	$1,290 00	17

WINDHAM COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	Graded Schools.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
Brooklyn,	9	8	12	426	..	2	..	..	..	3	..	165.00	..
Ashford,	10	9	9	276	..	..	..	..	..	6	..	171.11	..
Canterbury,	11	11	11	418	..	..	..	..	..	5	..	165.18	..
Chaplin,	1	3	3	100	..	..	..	..	..	..	..	153.33	..
Eastford,	8	6	6	214	..	..	..	..	..	..	..	179.16	..
Hampton,	7	7	7	183	..	..	..	..	..	..	..	171.42	..
Killingly,	15	13	31	1,263	3	3	..	..	1	1	..	189.03	..
Plainfield,	11	8	21	1,109	2	..	.	..	2	..	..	189.04	..
Pomfret,	8	8	8	376	..	..	..	..	..	..	..	163.75	..
Putnam,	6	7	17	787	1	2	..	..	1	..	1	173.65	..
Scotland,	5	5	5	169	..	..	..	..	..	2	..	179.60	..
Sterling,	8	8	8	252	..	..	..	..	..	2	..	180.00	..
Thompson,	13	12	17	768	3	1	..	..	..	2	..	180 00	..
Windham,	11	15	35	1,463	3	1	..	.	2	1	1	193.88	..
Woodstock,	16	16	16	536	..	..	..	..	..	2	..	173.75	..
15 Towns.	139	136	206	8,340	12	9	..	..	6	24	2	182.76	..

WINDHAM COUNTY

TOWNS.	Schoolhouses.					Libraries.				
	Number.	No. Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Brooklyn,.............	9	..	..	.....	$14,900 00	2	115	9	$50 00	1
Ashford,........... ..	9	1	..	....	4,700 00	..	....	..	....	1
Canterbury,..........	11	..	..	....	4,200 00	2	19	..	....	..
Chaplin, ...	3	1	..	....	2,300 00	3	150	1	20 00	..
Eastford,..	6	1	..	....	2,175 00	1	150	..	....	1
Hampton,............	7	1	..	....	3,000 00	2	35	2	10 00	1
Killingly,.............	15	3	..	....	47,050 00	14	1,000	15	115 00	1
Plainfield, ...	8	..	..	... .	30,615 00	9	769	5	65 00	3
Pomfret,.	8	..	..	....	6,600 00	8	125	8	70 00	2
Putnam,..............	7	..	.	....	35,800 00	2	750	..	....	1
Scotland, ...	5	..	..	....	900 00	..	....	..	....	1
Sterling,.	8	2	..	....	3,800 00	2	100	1	5 00	..
Thompson,......	13	2	..	....	20,400 00	13	376	3	20 00	1
Windham,............	14	..	..	....	59,000 00	10	5,564	11	90 00	2
Woodstock,..........	16	..	..	....	10,900 00	..	....	..	....	2
15 Towns.	139	11	..	....	$246,340 00	68	9,153	55	$445 00	17

LITCHFIELD COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	Graded Schools.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
Litchfield,	1	15	23	705	2	..	..	..	1	..	..	170.00	..
Barkhamsted,	11	10	10	251	..	..	..	..	..	3	..	137.00	..
Bethlehem,	7	5	5	146	..	.	..	..	..	1	..	154.60	..
Bridgewater,	5	5	6	178	1	..	..	..	..	..	..	161.16	..
Canaan,	8	8	8	200	..	..	..	..	..	1	..	176.[illegible]5	..
Colebrook,	9	9	9	282	..	..	..	..	..	2	..	179.77	..
Cornwall,	16	11	11	332	..	..	..	..	..	3	..	177.72	..
Goshen,	12	9	9	246	..	..	..	..	..	4	..	152.22	..
Harwinton,	1	8	8	248	..	..	..	..	..	1	..	165.00	..
Kent,	13	13	13	425	..	..	..	..	..	5	..	169.23	..
Morris,	6	6	6	184	..	..	..	..	..	2	..	166.66	..
New Hartford,	9	10	14	432	2	1	..	..	..	3	..	181.78	..
New Milford,	1	18	22	800	1	..	1	..	..	2	..	183.18	..
Norfolk,	11	11	14	363	1	1	..	..	..	2	..	150.85	..
North Canaan,	5	5	9	320	1	..	1	..	.	..	..	179.00	..
Plymouth,	8	8	15	568	..	1	..	..	1	..	..	186.00	..
Roxbury,	7	7	7	214	..	..	..	..	..	1	..	164.85	..
Salisbury,	13	10	18	778	3	1	1	..	..	2	..	194.16	..
Sharon,	17	17	18	620	1	..	..	..	.	6	1	180.00	..
Thomaston,	1	3	14	800	1	..	..	..	1	..	1	180.00	..
Torrington,	1	9	29	1,500	2	..	..	..	3	..	1	200.00	..
Warren,	7	5	5	132	..	..	..	..	..	1	..	153.00	..
Washington,	1	12	13	355	1	..	..	..	..	2	..	170.61	..
Watertown,	9	8	14	502	1	..	..	..	1	..		180.00	..
Winchester,	8	8	22	856	..	..	..	..	2	..	..	189.38	..
Woodbury,	14	13	14	410	1	..	..	..	..	6	..	183.57	..
26 Towns.	201	243	336	11,847	18	4	3	..	9	47	3	177.40	..

LITCHFIELD COUNTY

TOWNS.	Schoolhouses.					Libraries.				
	Number.	Number Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Litchfield,	16	3	1	$2,000 00	$30,179 00	2	400	1	$100 00	3
Barkhamsted,	11	3	..	....	3,900 00	1	75	..	....	1
Bethlehem,	7	3	..	....	1,950 00	..	....	..	....	..
Bridgewater,	5	..	..	....	1,825 00	2	119	..	....	..
Canaan,	8	..	..	....	2,950 00	1	15	2	15 00	1
Colebrook,	9	..	..	....	6,800 00	1	....	1	5 00	..
Cornwall,	16	4	..	....	5,800 00	1	30	..	....	1
Goshen,	10	..	..	....	2,300 00	3	75	1	10 00	..
Harwinton,	8	..	..	....	5,800 00	..	....	..	....	..
Kent,	13	3	..	....	4,200 00	..	....	..	....	..
Morris,	6	1	..	....	3,400 00	2	355	..	....	1
New Hartford,	9	2	..	....	16,850 00	2	138	2	15 00	..
New Milford,	18	1	..	....	16,100 00	5	1,029	1	115 00	2
Norfolk,	11	2	..	....	8,675 00	2	175	4	30 00	1
North Canaan,	5	..	..	....	7,200 00	1	75	..	....	1
Plymouth,	9	1	..	....	10,450 00	8	1,369	8	55 00	2
Roxbury,	7	..	..	....	2,400 00	7	50	..	....	1
Salisbury,	13	1	1	400 00	12,425 00	3	506	13	80 00	1
Sharon,	17	3	..	....	5,850 00	1	15	18	120 00	2
Thomaston,	6	..	..	....	22,000 00	1	200	1	35 00	1
Torrington,	9	..	..	....	85,500 00	3	2,000	1	60 00	1
Warren,	5	..	..	....	2,100 00	5	300	5	25 00	..
Washington,	12	..	..	....	5,650 00	2	100	..	....	1
Watertown,	9	..	..	....	16,900 00	4	125	1	15 00	1
Winchester,	8	..	.	....	33,250 00	7	1,931	2	25 00	1
Woodbury,	14	1	..	....	8,925 00	..	...	..	....	1
26 Towns.	261	28	2	$2,400 00	$323,379 00	64	9,082	61	$705 00	23

MIDDLESEX COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	Graded Schools.					Schools averaging 8 or less.	High Schools	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
Middletown,	18	18	33	1,234	1	..	1	..	2	3	..	183.57	..
" City,	1	4	24	1,196	1	..	..	..	3	..	1	181.50	..
" complete,	19	22	57	2,430	2	..	1	..	5	3	1	182.70	..
Haddam,	9	9	12	418	..	..	1	..	.	..	..	179.83	..
Chatham,	11	10	12	451	..	1	..	..	..	1	..	180.00	..
Chester,	4	4	6	261	2	.	..	..	..	..	..	180.00	..
Clinton,	1	2	2	46	..	..	..	.	..	1	..	190.00	..
Cromwell,	5	6	11	419	4	..	..	..	..	..	1	180.00	..
Durham,	5	5	6	177	1	..	..	..	..	..	..	186.66	..
East Haddam,	17	17	18	639	1	..	..	..	..	5	..	180.00	..
Essex,	1	5	9	370	2	..	..	..	..	..	..	190.00	..
Killingworth,	8	8	8	193	..	..	..	..	..	5	..	161.50	..
Middlefield,	4	4	4	162	..	..	..	..	..	..	..	180.50	..
Old Saybrook,	1	2	6	275	..	..	..	1	..	..	1	173.16	..
Portland,	6	6	17	795	1	1	..	..	1	1	..	200 00	1
Saybrook,	1	2	6	280	..	..	..	1	..	..	..	190.00	..
Westbrook,	1	5	5	180	..	..	..	..	..	1	..	172.00	..
15 Towns.	93	107	179	7,096	13	2	2	2	6	17	3	182 64	1

MIDDLESEX COUNTY

TOWNS.	SCHOOLHOUSES.					LIBRARIES.				
	Number.	No. Poor.	Built during year.	Cost of New.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Middletown, ...	17	..	..	....	$27,350 00	6	400	1	$5 00	..
" City, ...	4	..	1	$66,778 29	125,000 00	1	600	..	....	1
" complete, ...	21	..	1	66,778 29	152,350 00	7	1,000	1	5 00	1
Haddam, ...	9	..	..	... .	14,200 00	..	.. .	1	5 00	1
Chatham, ...	11	..	..	....	8,400 00	3	70	..	....	1
Chester, ...	4	..	..	....	6,250 00	3	236	2	10 00	1
Clinton, ...	3	1	..	....	1,600 00	2	30	..	....	1
Cromwell, ...	5	1	..	....	5,400 00	2	90	1	10 00	1
Durham, ...	5	3	..	....	4,450 00	6	200	..	....	1
East Haddam, ...	17	..	..	....	10,450 00	6	200	1	5 00	1
Essex, ...	4	..	..	....	7,000 00	8	280	1	20 00	3
Killingworth, ...	8	1	..	....	3,100 00	..	....	..	....	..
Middlefield, ...	4	..	..	....	5 ,100 00	4	450	1	5 00	1
Old Saybrook, ...	2	..	..	....	12,500 00	1	300	1	25 00	1
Portland, ...	7	..	..	....	42,200 00	5	1,356	3	30 00	1
Saybrook, ...	2	..	..	....	11,000 00	1	598	1	15 00	..
Westbrook, ...	5	..	..	....	1,250 00	..	....	..	....	1
15 Towns.	107	6	1	$66,778 29	$285,250 00	48	4,810	13	$130 00	15

TOLLAND COUNTY

TOWNS.	Districts.	Number of Schools.	Departments.	Number of Sittings.	Graded Schools.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments.				
Tolland,	11	11	11	254	..	..	..	..	..	1	..	179 63	..
Andover,	1	1	1	40	..	..	..	..	..	..	..	180.00	..
Bolton,	5	4	4	122	..	..	..	..	..	1	..	180.00	..
Columbia,	8	8	8	226	..	..	..	..	..	2	..	175.00	..
Coventry,	10	10	12	422	..	1	..	..	..	1	..	174.91	..
Ellington,	10	8	10	366	2	..	..	..	..	..	..	180.00	..
Hebron,	10	10	10	258	..	..	..	..	..	1	..	169.30	..
Mansfield,	14	14	14	457	..	.	..	..	..	1	..	185.00	..
Somers,	10	9	11	377	..	1	..	..	..	..	1	174.00	.
Stafford,	15	16	25	900	1	2	..	..	1	4	..	170.31	..
Union,	6	6	6	192	..	..	..	..	..	3	..	170.00	..
Vernon,	9	11	38	2,758	2	..	..	..	3	1	1	181.31	.
Willington,	9	9	9	385	..	..	..	..	..	2	..	168.77	..
13 Towns.	118	117	159	6,757	5	4	..	..	4	17	2	176.47	..

TOLLAND COUNTY

TOWNS.	Schoolhouses.					Libraries.				
	Number.	No. Poor.	Built during year.	Cost of new.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Tolland,	11	1	..	....	$4,700 00	3	500	..	....	..
Andover,	1	..	..	....	300 00	..	....	..	....	1
Bolton,	4	..	..	....	3,250 00	1	60	..	....	1
Columbia,	8	..	..	....	3,100 00	1	13	1	$5.00	1
Coventry,	10	..	..	....	12,400 00	6	436	10	55.00	2
Ellington,	10	2	..	....	19,300 00	8	378	..	....	1
Hebron,	10	4	..	....	4,650 00	5	115	3	15.00	1
Mansfield,	14	3	..	... .	8,700 00	6	267	3	15.00	.
Somers,	10	1	..	....	6,700 00	2	50	..	....	1
Stafford,	15	3	1	$7,112 40	33,300 00	6	1,350	2	10.00	1
Union,	6	..	..	....	3,000 00	6	220	1	10.00	1
Vernon,	11	2	..	....	119,750 00	2	1,041	2	60.00	1
Willington,	9	..	..	....	3,300 00	2	30	..	....	..
13 Towns.	119	16	1	$7,112 40	$222,450 00	48	4,460	22	$170.00	11

SUMMARY BY COUNTIES

COUNTIES.	Districts.	Number of Schools.	Departments.	Number of Sittings.	GRADED SCHOOLS.					Schools averaging 8 or less.	High Schools.	Average length in days.	Evening Schools.
					2 Departments.	3 Departments.	4 Departments.	5 Departments.	6 or more Departments				
Hartford,	209	256	675	28,597	34	10	5	8	25	22	12	185.96	4
New Haven,	131	248	872	41,391	22	6	23	9	51	10	10	195.35	18
New London,	207	211	387	15,853	13	10	12	3	12	31	..	184.53	4
Fairfield,	163	245	622	28,103	18	10	4	2	35	22	4	192.71	4
Windham,	139	136	206	8,340	12	9	..	..	6	24	2	182.76	..
Litchfield,	201	243	336	11,847	18	4	3	..	9	47	3	177.40	..
Middlesex,	93	107	179	7,096	13	2	2	2	6	17	3	182.64	1
Tolland,	118	117	159	6,757	5	4	..	..	4	17	2	176.47	..
The State.	1261	1563	3436	147,984	135	55	49	24	148	190	36	187.47	31

SUMMARY BY COUNTIES

COUNTIES.	SCHOOLHOUSES.					LIBRARIES.				
	Number.	Number Poor.	Built during year.	Cost of new.	Estimated value of sites and buildings.	No. Schools having.	No. of Books.	No. drawing State money.	Total amount drawn.	No. Public.
Hartford,	265	19	2	$9,298 49	$2,333,500 00	148	36,143	125	$1,755 00	25
New Haven,	273	33	2	20,042 42	2,911,048 02	122	41,808	40	1,980 00	17
New London,	221	27	1	66,000 00	857,225 00	66	10,051	46	615 00	14
Fairfield,	248	21	3	29,239 51	1,649,954 00	99	13,353	38	1,290 00	17
Windham,	139	11	..	....	246,340 00	68	9,153	55	445 00	17
Litchfield,	261	28	2	2,400 00	323,379 00	64	9,082	61	705 00	23
Middlesex,	107	6	1	66,778 29	285,250 00	48	4,810	13	130 00	15
Tolland,	119	16	1	7,112 40	222,450 00	48	4,460	22	170 00	11
The State.	1633	161	12	$200,871 11	$8,829,146 02	663	128,860	400	$7,090 00	139

TABLE SHOWING ENUMERATION OF PERSONS BETWEEN 4 AND 16 YEARS OF AGE, BY DISTRICTS, IN OCT., 1895.

HARTFORD COUNTY.

HARTFORD.

Districts.	*Enum. 1895.*
First,	2,430
South,	4,299
Second North,	1,536
West Middle,	1,220
Arsenal,	1,072
Washington,	655
South West,	54
North East,	600
North West,	268
Gravel Hill,	41
Total, 10 Districts,	12,175

AVON.

1,	8
2,	27
3,	31
4,	21
5,	35
6,	105
7,	21
Total, 7 Districts,	248

BERLIN.

1,	106
2,	102
3,	25
4,	26
5,	63
6,	31
7,	18
8,	64
9,	99
Total, 9 Districts,	534

BLOOMFIELD.

Centre,	56
Farms,	53
North Middle,	8
South Middle,	36
Scotland South,	16
Duncaster,	28
South West,	23
North East,	18
Total, 8 Districts,	238

BRISTOL.

1,	462
2,	211
3,	664
5,	124
6,	63
7,	12
8,	32
9,	27
10,	27
11,	26
12,	18
13,	152
Total, 12 Districts,	1,818

BURLINGTON.

Districts.	*Enum. 1895.*
First,	27
Second,	23
Third,	32
Fourth,	20
Fifth,	19
Sixth,	19
Seventh,	7
Eighth,	16
Ninth,	118
Total, 9 Districts,	281

CANTON.

Collinsville,	356
Suffrage,	34
River,	71
East Hill,	15
Centre,	33
South Centre,	36
North,	33
West,	31
Total, 8 Districts,	609

EAST GRANBY.

1,	35
2,	26
3,	26
4,	6
5,	10
6,	18
Total, 6 Districts,	121

EAST HARTFORD.

1, North,	54
2, Second North,	252
3, Centre,	321
4, Second South,	89
5, Hockanum,	85
6, South Middle,	39
7, South East,	26
8, Burnside,	269
9, Meadow,	167
10, Long Hill,	11
Total, 10 Districts,	1,313

EAST WINDSOR.

1,	33
2,	6
3,	46
4,	18
5,	216
6,	20
7,	36
8,	256
9,	12
10,	36
11,	35
Total, 11 Districts,	714

ENFIELD.

Districts.	*Enum. 1895.*
Consolidated,	1,533
Total, 1 District,	1,533

FARMINGTON.

Center,	159
East Farms,	38
North East,	6
Scott's Swamp,	23
Union,	423
Waterville,	17
West,	32
Total, 7 Districts,	698

GLASTONBURY.

1, Naubuc,	95
2, Center,	84
3, Green,	54
4, Old Church,	34
5, Addison,	36
6, S. Center,	74
7, Taylortown,	14
8, Matson Hill,	22
9, Twine Mill,	83
10, Nayaug,	14
11, North St.,	16
12, Wassuc,	42
13, Middle,	20
14, Hill,	8
15, North East,	21
16, Goslee,	16
17, Neipsic,	44
18, Williams,	38
Total, 18 Districts,	715

GRANBY.

1,	56
2,	24
3,	7
4,	43
5,	13
6,	35
8,	18
9,	14
10,	22
11,	17
Total, 10 Districts,	249

HARTLAND.

Union,	10
West Center,	9
East Center,	17
Mill,	19
South Hollow,	11
Center Hill,	9
South West E. Dist.,	9
North East District,	13
Total, 8 Districts,	97

HARTFORD COUNTY—*continued*

MANCHESTER.

Districts.	*Enum. 1895.*
1,	36
2,	78
3,	92
4,	90
5,	59
6,	78
7,	112
8,	427
9,	1,067
Total, 9 Districts,	2,039

MARLBOROUGH.

Center,	30
North,	14
North West,	32
South,	11
Total, 4 Districts,	87

NEW BRITAIN.

Consolidated,	4,825
Total, 1 District,	4,825

NEWINGTON.

North,	61
Middle,	54
South,	34
South East,	25
Total, 4 Districts,	174

PLAINVILLE.

Consolidated,	348
Total, 1 District,	348

ROCKY HILL.

North,	28
Center,	80
South,	48
West,	44
Total, 4 Districts,	200

SIMSBURY.

Districts.	*Enum. 1895.*
Center,	52
Hop Meadow,	46
East Weatogue,	24
West Weatogue,	28
Meadow Plain,	9
Bushy Hill,	19
West Simsbury,	36
New District,	27
Union,	27
Westover's Plain,	16
Terry's Plain,	19
Tariffville,	109
Total, 12 Districts,	412

SOUTHINGTON.

Consolidated,	1,136
Total, 1 District,	1,136

SOUTH WINDSOR.

First,	27
Second,	32
Third,	42
Fourth,	34
Fifth,	47
Sixth,	14
Seventh,	39
Eighth,	40
Ninth,	23
Tenth,	24
Total, 10 Districts,	322

SUFFIELD.

1st Society.

North West,	55
South,	68
East,	37
South East,	47
North,	38
North East,	62
Center,	137

2d Society.

Districts.	*Enum. 1895.*
Center,	63
South,	33
West,	28
North,	44
Total, 11 Districts,	612

WEST HARTFORD.

Union,	483
Total, 1 District,	483

WETHERSFIELD.

First,	85
Second,	94
Third,	55
Fourth,	62
Fifth,	45
Sixth,	45
Total, 6 Districts,	386

WINDSOR.

1,	46
2,	34
3,	196
4,	49
5,	29
6,	55
7,	28
8,	19
9,	128
10,	40
Total, 10 Districts,	624

WINDSOR LOCKS.

Union,	756
Total, 1 District,	756

NEW HAVEN COUNTY.

NEW HAVEN.

City District,	20,509
Westville,	400
South,	69
Total, 3 Districts,	20,978

ANSONIA.

Consolidated,	2,725
Total, 1 District,	2,725

BEACON FALLS.

Consolidated,	101
Total, 1 District,	101

BETHANY.

1, Center,	41
2, Gate,	29
3, Smith,	7
4, Downs,	12
5, Beecher,	14
Total, 5 Districts,	103

BRANFORD.

Union,	961
Total, 1 District,	961

CHESHIRE.

1,	71
2,	26
3,	32
4,	15
5,	8
6,	23
7,	34
8,	21
9,	13
10,	28
11,	22
12,	59
Total, 12 Districts,	352

DERBY.

Consolidated,	1,581
Total, 1 District,	1,581

EAST HAVEN.

Union,	117
North,	54
Total, 2 Districts,	171

GUILFORD.

1, Union,	314
2, Clapboard Hill,	16
3, Nut Plains,	15
5, Moose Hill,	10
6, Leete's Island,	59
7, Sachem's Head,	10
8, N. G., South,	16
9, N. G., Center,	21
10, N. G., North,	13
11, N. G., Bluff,	9
Joint Districts,	15
Total, 10 Districts,	498

NEW HAVEN COUNTY — *continued*

HAMDEN.

Districts.	*Enum. 1895.*
Consolidated,.........	888
Total, 1 District,..	888

MADISON.

Consolidated,.........	257
Total, 1 District,...	257

MERIDEN.

Corner,...............	2,057
Center,...............	1,008
West,........	1,171
Railroad, ...	490
Old Road, ...	526
Prattsville,...........	561
Hanover, ...	215
Farms, ...	71
East,........... ...	84
North East,.........	61
South East,.....	34
North West,.........	31
Total, 12 Districts,.	6,309

MIDDLEBURY.

1, ...	25
2, ...	31
3, ...	24
4, ...	47
5, ...	11
6, ...	7
Total, 6 Districts,.	145

MILFORD.

Union,...............	719
Total, 1 District,..	719

NAUGATUCK.

1, Union Center,.....	1,186
2, Union City,........	424
3, Millville, ...	62
4, Middle, ...	41
5, Straitsville, ...	21
6, Pond Hill,.........	36
Total, 6 Districts,.	1,770

NORTH BRANFORD.

Districts.	*Enum. 1895.*
First,............ ...	21
Second,..............	57
Third,...............	27
Fourth,....	6
Fifth,...............	14
Sixth,.	29
Seventh,............	22
Total, 7 Districts,.	176

NORTH HAVEN.

1,....................	18
2,............	39
3, ...	72
4, ...	86
5, ...	12
6, ...	23
7, ...	36
8, ...	46
Total, 8 Districts,.	332

ORANGE.

Union, ...	856
Northern,............	187
Western,.	51
First, ...	30
Second,..............	56
Third, ...	15
Fourth, ...	10
Tyler City,..........	42
Total, 8 Districts,.	1,247

OXFORD.

1, Center,...........	34
2, Quakers' Farms,..	16
3, Chestnut Tree Hill,	27
4, Christian Street,..	16
5, Five Mile Hill,...	11
6, Riggs Street,.....	20
7, Bowers' Hill,.....	19
8, Hull's Hill,.......	19
10, Shrub Oak,.......	20
11, Red Oak,.........	11
12, Zoar Bridge,.. ...	17
13, Rock House Hill,.	16
Total, 12 Districts,.	226

PROSPECT.

Union,...............	105
Total, 1 District,..	105

SEYMOUR.

Districts.	*Enum. 1895.*
Consolidated, ...	725
Total, 1 District,..	725

SOUTHBURY.

1, White Oak,........	12
2, Bullet Hill, ...	51
3, Southford,....	33
4, Kettletown,........	9
5, South Britain,......	46
6, Pierce Hollow,.....	26
7, Purchase,.	52
8, Wapping, ...	20
9, Pootatuck,....... .	10
Total, 9 Districts,.	259

WALLINGFORD.

1, Cook Hill,........	25
2, Parker's Farms,..	30
3, Yalesville,..... ..	188
4, North Farms,.....	24
5, 6, Central,........	1,317
7, Pond Hill, ...	37
8, East Farms,......	23
9, N. E. Farms,.....	21
10, Tyler's Mills, ...	14
Total, 9 Districts,.	1,679

WATERBURY.

Center, ...	9,012
Hopeville, ...	266
Waterville,...........	186
East Farms, ...	34
Saw Mill Plains,......	79
Buck's Hill,..........	60
Bunker Hill,.........	101
Oronoke, ...	72
Town Plot, ...	108
East Mountain, ...	34
South Brooklyn,......	75
Total, 11 Districts,.	10,027

WOLCOTT.

Union,...............	135
Total, 1 District,..	135

WOODBRIDGE.

Consolidated, ...	166
Total, 1 District,..	166

NEW LONDON COUNTY

NEW LONDON.

Union,...............	2,918
Total, 1 District,..	2,918

NORWICH.

Norwich Town,......	244
Central,...............	1,382
West Chelsea,........	1,054
Greeneville,..........	963
Wequonnock, ...	901
Falls, or Third,.... ..	288
West Town Street,...	104
Mill, or Yantic, ...	81
East Great Plain,.....	58
Scotland Road,.......	15
Plain Hill, ...	19
Wawecus Hill,.......	13
Total, 12 Districts,.	5,122

BOZRAH.

First,...............	19
Second,..............	13
Third,...............	31
Fourth,..............	7
Fifth, ...	45
Sixth,...............	55
Seventh,............	21
Total, 7 Districts,.	191

COLCHESTER.

First,...............	215
Second,....	36
Third,...............	31
Fourth,..............	25
Fifth,...............	60
Sixth,...............	11
Seventh,....	27
Center, Westchester,..	14
North East, "	21
North West, "	12
South East, "	12
South West, "	21
Total, 12 Districts,.	458

NEW LONDON COUNTY—*continued*

EAST LYME.

Districts.	*Enum. 1895.*
1, Hill,	34
2, Flanders,	68
3, Boston,	15
4, Niantic,	120
5, Black Point,	39
6, Mack's Mill,	10
7, Toad Rock,	34
8, River Head,	15
9, Walnut Hill,	15
Total, 9 Districts,	350

FRANKLIN.

2,	12
3,	7
4,	15
5,	9
6,	9
7,	14
8,	19
Total, 7 Districts,	85

GRISWOLD.

1,	7
2,	25
3,	14
4,	12
5,	12
6,	36
7,	72
8,	11
9,	12
10,	5
11,	534
12,	15
13,	15
Joint Districts,	14
Total, 13 Districts,	784

GROTON.

1,	251
2,	46
3,	37
4,	35
5,	221
6,	59
7,	69
8,	36
9,	17
10,	85
11,	182
Joint District,	17
Total, 11 Districts,	1,055

LEBANON.

Districts.	*Enum. 1895.*
1,	29
2,	21
3,	17
4,	11
5,	23
6,	54
7,	19
8,	9
9,	29
10,	24
11,	5
12,	21
13,	35
14,	13
15,	9
16,	14
Total, 16 Districts,	333

LEDYARD.

1,	11
2,	29
3,	30
4,	23
5,	19
6,	14
7,	14
8,	26
9,	8
10,	14
11,	19
12,	22
13,	41
14,	12
Total, 14 Districts,	282

LISBON.

1, Newent,	18
2,	14
3,	35
4,	14
5,	22
6,	9
Total, 6 Districts,	112

LYME.

1, Bill Hill,	21
2, Pleasant Valley,	22
3, Joshuatown,	23
4, North Grassy Hill,	13
5, South Grassy Hill,	17
6, Sterling City,	35
7, Hadlyme,	32
Total, 7 Districts,	163

MONTVILLE.

1,	40
2,	10
3,	24
4,	230
5,	21
6,	20
7,	17
9,	27
10,	162
11,	31
12,	35
13,	14
Total, 12 Districts,	631

NORTH STONINGTON.

Districts.	*Enum. 1895*
1,	16
2,	40
3,	22
4,	48
5,	12
6,	23
7,	14
8,	7
9,	8
10,	14
11,	37
12,	10
13,	19
14,	31
15,	12
Total, 15 Districts,	313

OLD LYME.

First,	67
Second,	23
Third,	9
Fourth,	15
Fifth,	37
Sixth,	23
Seventh,	26
Eighth,	17
Total, 8 Districts,	217

PRESTON.

1, Long Society,	171
2, Bridge,	199
3, Palmer,	11
4, Poquetannock,	92
5, Haskell,	26
6, Brewster's Neck,	28
7, Preston City,	13
9, Brown,	23
10, Kimball,	22
11, Crary,	9
12, Plains,	26
Total, 11 Districts,	620

SALEM.

1,	11
Central, 2 and 3,	29
4,	17
5,	17
6,	15
7,	8
8,	17
Total, 7 Districts,	114

SPRAGUE.

1, Baltic,	106
2, Potopogue,	14
3, Hanover,	59
4, Branch,	29
5, Versailles,	141
Total, 5 Districts,	349

New London County—*continued*

Stonington.

Districts.	*Enum. 1895.*
1, Road,	21
2, Quiambog,	26
3, Mystic Bridge,	134
4, Mason's Island,	11
6, Old Mystic,	105
7, Wheeler,	11
9, Borough,	460
10, Wequetequock,	38
11, Pawcatuck,	46
13, Randall,	26
14,	9
15, Williams,	5
16, Liberty Street,	303
18, Palmer Street,	380
19, Harbor,	19
Total, 15 Districts,	1,594

Voluntown.

3,	11
4,	159
5,	15
6,	15
7,	8
8,	9
9,	6
10,	18
Total, 8 Districts,	241

Waterford.

Districts.	*Enum. 1895.*
1, Lake's Pond,	20
2, Upper Quaker Hill,	28
3, Lower Quaker Hill,	87
4, Graniteville,	52
5, Jordan,	123
6, Cohanzie,	116
7, Watrous,	22
8, Gilead,	18
9, Spithead,	47
10, West Neck,	46
11, East Neck,	19
Total, 11 Districts,	578

Fairfield County.

Bridgeport.

Union,	13,629
Total, 1 District,	13,629

Danbury.

Center,	3,195
South Center,	834
Mill Plain,	42
Beaver Brook,	121
Great Plain,	40
King Street,	35
Miry Brook,	55
Middle River,	43
Pembroke,	28
Westville,	30
Long Ridge,	27
Starr's Plain,	16
Deer Hill,	153
Total, 13 Districts,	4,619

Bethel.

Union,	745
Total, 1 District,	745

Brookfield.

1,	42
2,	26
3,	28
4,	29
5,	23
6,	31
7,	21
8,	9
Total, 8 Districts,	209

Darien.

1, Noroton,	110
2, Center,	156
3, Ox Ridge,	45
4, Holmes,	39
Total, 4 Districts,	350

Easton.

1, Center,	20
3, Narrows,	37
4, Union,	24
5,	17
6, Judd,	10
7, Rock House,	11
9,	8
10,	28
Joint Districts,	33
Total, 8 Districts,	188

Fairfield.

Consolidated,	866
Total, 1 District,	866

Greenwich.

1, Meeting House,	820
2, Cos Cob,	93
3, Sound Beach,	110
4, Mianus,	85
5, North Mianus,	48
6, North Cos Cob,	28
7, S. Stanwich,	37
8, N. Stanwich,	25
9, Banksville,	12
10, Round Hill,	52
11, Quaker Ridge,	41
12, North Street,	43
13, Clapboard Ridge,	47
14, Peck's Land,	28
15, Riversville,	47
16, Glenville,	141
17, King Street,	47
18, Byram,	256
19, E. Port Chester,	304
20, Pemberwick,	34
Total, 20 Districts,	2,298

Huntington.

Consolidated,	1,029
Total, 1 District,	1,029

Monroe.

Center,	38
Cutler's Farms,	31
Stepney,	18
Birdsey's Plains,	26
Eastern,	22
Elm Street,	30
Walker's Farms,	21
Total, 7 Districts,	186

New Canaan.

Consolidated,	600
Total, 1 District,	600

New Fairfield.

East Center,	35
West Center,	25
Pondville,	21
Centerville,	23
Great Meadow,	30
Wood Creek,	12
Total, 6 Districts,	146

Newtown.

Flat Swamp,	16
Gray's Plain,	13
Gregory's Orchard,	18
Half Way River,	11
Hanover,	14
Head of the Meadow,	4
Hopewell,	13
Huntingtown,	33
Lake George,	8
Land's End,	41
Middle,	58
Middle Gate,	23
North Center,	43
Palestine,	31
Pohtatuck,	73
Sandy Hook,	134
South Center,	16
Taunton,	34
Toddy Hill,	26
Walnut-tree Hill,	28
Zoar,	33
Total, 21 Districts,	570

Norwalk.

1, South Norwalk,	1,422
2, Over River,	760
3, Center,	543
4, East Norwalk,	621
5, North West,	176
6, Broad River,	133
7, South 5-Mile River,	185
8, North Center,	218
9, West Norwalk,	71
10, Middle 5-Mile River,	89
11, North East,	75
Total, 11 Districts,	4,293

Redding.

1, Center,	37
2, Redding Ridge,	35
3, Couch Hill,	19
4, Diamond Hill,	26
5, Boston,	43
6, Hull,	11
7, Umpawaug,	37
8, Lonetown,	14
9, Pickett's Ridge,	..
10, Foundry,	13
Joint Districts,	..
Total, 10 Districts,	235

FAIRFIELD COUNTY—*continued*

RIDGEFIELD.

Districts.	*Enum. 1895.*
1, Scotland,	21
2, Bennett's Farm,	14
3, Limestone,	12
4, Titicus,	66
5, West Mountain,	40
6, Center,	122
7, West Lane,	40
8, Whipstick,	27
9, Flat Rock,	29
10, Branchville,	31
11, Florida,	30
12, Farmingville,	14
13, N. Ridgebury,	15
14, S. Ridgebury,	19
Total, 14 Districts,	480

SHERMAN.

1,	20
2,	21
3,	33
4,	11
5,	13
6,	12
Total, 6 Districts,	110

STAMFORD.

Districts.	*Enum. 1895.*
Consolidated,	4,071
Total, 1 District,	4,071

STRATFORD.

First,	543
Putney,	46
Oronoque,	25
Total, 3 Districts,	614

TRUMBULL.

Consolidated,	299
Total, 1 District,	299

WESTON.

Middle,	33
Forge,	21
Upper Parish,	31
Good Hill,	37
Lyons Plains,	27
Total, 5 Districts,	149

WESTPORT.

Districts.	*Enum. 1895.*
East Saugatuck,	118
West Saugatuck,	111
Compo,	118
Green's Farms,	102
South Saugatuck,	103
Cross Highway,	123
East Long Lots,	21
West Long Lots,	46
Poplar Plain,	25
North,	20
Total, 10 Districts,	787

WILTON.

1,	32
2,	32
3,	22
4,	39
5,	9
6,	50
7,	36
8,	8
9,	23
10,	121
Total, 10 Districts,	372

WINDHAM COUNTY.

ASHFORD.

1,	18
2	18
3,	7
4,	13
5,	13
6,	5
7,	14
8,	23
9,	9
10,	12
Total, 10 Districts,	132

BROOKLYN.

1,	64
2,	25
3,	23
4,	13
5,	49
6,	6
7,	4
8,	15
9,	302
Total, 9 Districts,	501

CANTERBURY.

1, Packerville,	12
2, Baldwin,	8
3, Willoughby,	13
4, Green,	21
5, Hyde,	8
6, North Society,	11
7, Frost,	20
8, Peck,	15
9, Smith,	17
10, Westminster,	28
11, Raymond,	11
Joint Districts,	4
Total, 11 Districts,	168

CHAPLIN.

Consolidated,	98
Total, 1 District,	98

EASTFORD.

1, Eastford,	26
2, East Hill,	16
3, Phœnixville,	20
4, South,	3
5, Sibley,	6
6, North Ashford,	24
7, Shippee,	14
8, Axe Factory,	18
Total, 8 Districts,	127

HAMPTON.

Center,	28
Union,	13
Goshen,	19
No. Bigelow,	16
So. Bigelow,	27
Apaquag,	16
Raymond,	8
Total, 7 Districts,	127

KILLINGLY.

1, Danielson,	558
4, Center,	87
5, Mashentuck,	17
6, Dayville,	102
7, Williamsville,	153
8, Attawaugan,	189
9, Ballouville,	143
11, Tucker,	11
12, Chestnut Hill,	74
13, Valley,	59
14, Sparks,	9
15, Ledge,	8
16, S. Killingly,	34
17, Horse Hill,	11
18, Warren,	18
Total, 15 Districts,	1,473

PLAINFIELD.

Middle,	60
Stone Hill,	19
Flat Rock,	31
South,	7
White Hall,	2
Black Hill,	10
Moosup,	466
Pond Hill,	19
Green Hollow,	17
Wauregan,	390
Union,	88
Total, 11 Districts,	1,109

POMFRET.

1,	50
2,	19
3,	21
4,	8
5,	45
6,	71
7,	40
8,	16
Total, 8 Districts,	270

PUTNAM.

1, East Putnam,	25
2, Sawyer,	58
3, Putnam Heights,	23
4, Gary,	49
5, Center,	579
6, Rhodesville,	783
Total, 6 Districts,	1,517

SCOTLAND.

1,	30
2,	14
3,	14
4,	24
5,	10
Total, 5 Districts,	92

WINDHAM COUNTY — *continued*

STERLING.

Districts.	*Enum. 1895.*
1, Ekonk,	26
2, Bailey,	10
3, Sterling Hill,	23
4, Oneco,	72
5, Stone Factory,	94
7, Titus,	18
8, Checkerberry,	8
9, Granite,	24
Total, 8 Districts,	275

THOMPSON.

Districts.	*Enum. 1895.*
3,	44
4,	64
5,	16
6,	51
7,	217
8,	94
9,	11
10,	41
11,	40
12,	20
13,	24
15,	26
16,	668
Total, 13 Districts,	1,316

WINDHAM.

Districts.	*Enum. 1895.*
1, First,	678
2, Natchaug,	991
3, West,	28
4, Jerusalem,	18
5, N. Windham,	38
6, Windham Center,	57
7, Warner,	17
8, S. Windham,	67
9, Christian Street,	20
10, Back Road,	26
11, Brick Top,	24
Total, 11 Districts,	1,964

WOODSTOCK.

Districts.	*Enum. 1895.*
1,	38
2,	46
3,	19
4,	41
5,	54
6,	23
7,	26
8,	19
9,	32
10,	10
11,	17
12,	30
13,	14
14,	23
15,	15
16,	23
Total, 16 Districts,	430

LITCHFIELD COUNTY.

LITCHFIELD.

Consolidated	696
Total, 1 District,	696

BARKHAMSTED.

1, Center,	18
2, Center Hill,	20
3, Washington Hill,	22
4, North East,	5
5, South East,	20
6, South Hollow,	10
7, North Hollow,	14
8, Green,	31
9, Riverton,	40
10, Valley,	16
11, Mallory,	28
Total, 11 Districts,	224

BETHLEHEM.

1,	39
2,	8
3,	10
4,	5
5,	18
6,	15
7,	5
Total, 7 Districts,	100

BRIDGEWATER.

1,	52
2,	28
3,	12
4,	9
5,	14
Fractional,	6
Total, 5 Districts,	121

CANAAN.

1,	39
2,	15
3,	20
4,	22
5,	18
6,	5
7,	35
9,	17
Total, 8 Districts,	171

COLEBROOK.

River,	41
Forge,	35
Beach Hill,	15
North,	11
Rock,	19
Center,	25
South,	30
South West,	8
West,	18
Total, 9 Districts,	202

CORNWALL.

1,	10
2,	17
3,	10
4,	15
5,	15
6,	12
7,	16
8,	27
10,	23
11,	5
12,	15
13,	7
14,	6
15,	48
16,	12
17,	5
Total, 16 Districts,	243

GOSHEN.

1, Center,	37
2, East Street,	11
3,	..
4,	..
5,	4
6, West Side,	21
7,	33
8,	31
9,	7
10, Hall Meadow,	7
12,	17
Union District,	9
Joint Districts,	6
Total, 12 Districts,	183

HARWINTON.

Union,	268
Total, 1 District,	268

KENT.

1, Flanders,	38
2, Plains,	47
3, North Kent,	31
4, Macedonia,	24
5, Bull's Bridge,	22
6, South Kent,	16
7, Geer Mountain,	7
8, Rock,	6
9, East Kent,	19
10, Fuller Mountain,	11
12, Kent Hollow,	18
13, Ore Hill,	14
14, Skiff Mountain,	8
Total, 13 Districts,	261

MORRIS.

1,	34
2,	32
3,	14
4,	20
5,	11
6,	11
Total, 6 Districts,	122

LITCHFIELD COUNTY — *continued*

NEW HARTFORD.

Districts.	*Enum. 1895.*
North End,	144
Greenwoods,	299
Pine Meadow,	121
West Hill,	14
Town Hill,	24
Bakerville,	35
Merrill,	15
South East Middle,	19
South East,	19
Fractional,	22
Total, 9 Districts,	712

NEW MILFORD.

Consolidated,	782
Total, 1 District,	782

NORFOLK.

Center,	127
West Norfolk,	64
East Middle,	25
North Middle,	18
South Middle,	14
North Norfolk,	13
North End,	8
South End,	12
South Norfolk,	7
Pond District,	8
Crissey,	13
Total, 11 Districts,	309

NORTH CANAAN.

1,	85
2,	193
3,	38
4,	23
5,	33
Total, 5 Districts,	372

PLYMOUTH.

1, Center,	104
2, Terryville,	184
3, East Plymouth,	30
4, Holt,	24
5, Baldwin,	20
6, Greystone,	30
7, Town Hill,	34
8, Allentown,	12
Total, 8 Districts,	438

ROXBURY.

Districts.	*Enum. 1895.*
1, Center,	27
2, Painter Hill,	13
3, Burritt,	14
4, Good Hill,	9
5, Warner's Mill,	19
7, North,	34
8, Weller,	77
Total, 7 Districts,	193

SALISBURY.

1,	9
2,	229
3,	21
4,	77
5,	12
6,	13
7,	138
8,	133
9,	22
10,	42
11,	82
12,	6
13,	12
Total, 13 Districts,	796

SHARON.

1, Hartwell,	22
2, Consolidated,	123
3, Calkins,	21
4, Amenia Union,	37
5, Gay Street,	21
6, Sharon Mountain,	13
7, White's Hollow,	17
8, Pine Swamp,	12
9, Sharon Valley,	56
10, Handlin,	14
11, Mudgetown,	10
12, Ellsworth, South S.,	9
13, Ellsworth, North S.,	12
15, Perry,	21
16, Hall,	14
17, West Woods,	5
Total, 16 Districts,	407

THOMASTON.

Union,	726
Total, 1 District,	726

TORRINGTON.

Union,	1,894
Total, 1 District,	1,894

WARREN.

Districts.	*Enum. 1895.*
Center,	32
College Farms,	14
North,	19
North East,	21
Pond,	12
West,	6
South River,	8
Total, 7 Districts,	112

WASHINGTON.

Consolidated,	325
Total, 1 District,	325

WATERTOWN.

Center,	302
Guernseytown,	22
French Mountain,	7
Linkfield,	16
Nova Scotia,	18
Polk,	28
East Side,	36
South,	76
Poverty Street,	27
Total, 9 Districts,	532

WINCHESTER.

1,	474
3,	19
4,	849
5,	31
6,	17
7,	33
8,	20
9,	22
Total, 8 Districts,	1,465

WOODBURY.

1, Middle Quarter,	25
2, Down Town,	36
3, Up Town,	70
4, Puckshire,	12
5, Minortown,	14
6, Nonnewaug,	16
7, Flanders,	14
8, Weekeepeemee,	15
9, Hazel Plains,	9
10, West Side,	31
11, Translyvania,	18
12, Quassapaug,	..
13, Cat Swamp,	28
14, Hotchkissville,	92
Total, 14 Districts,	380

MIDDLESEX COUNTY.

MIDDLETOWN.

City,	1,741
Westfield, 1st,	46
Westfield, 2d,	25
Westfield, 3d,	24
Westfield, 4th,	20
Newfield,	38
North Staddle Hill,	34
South Staddle Hill,	60
Industrial,	92
West Long Hill,	36
East Long Hill,	57
Durant,	180
Farm Hill,	122
Johnson Lane,	17
Hubbard,	43
Bow Lane,	28
Miller's Farms,	356
Haddam Road,	8
Maromas,	42
Total, 19 Districts,	2,969

HADDAM.

1, Haddam Center,	88
2, Higganum West,	166
3, Ponsett,	32
4, Shailerville,	31
6, Candlewood Hill,	25
7, Tylerville,	19
9, Brainard Hill,	29
12, Burr,	15
14, Haddam Neck,	31
Total, 9 Districts,	436

MIDDLESEX COUNTY — *continued*

CHATHAM.

Districts.	*Enum. 1895.*
Center, East Hampton,	108
N. Center, "	51
Clark's Hill, "	32
North, "	8
South East, "	25
East, "	24
N. W., Middle Haddam,	41
Gate, "	35
Center and Pine Brook,	24
Chestnut Hill,	23
Total, 11 Districts,.	371

CHESTER.

North,...............	95
South,...............	93
Middle,..............	41
West, ...	50
Total, 4 Districts,.	279

CLINTON.

Union,.........	239
Total, 1 District,..	239

CROMWELL.

North West,..........	75
West,................	112
North,...............	104
Center, ...	76
South,..	126
Total, 5 Districts,.	493

DURHAM.

Coginchaug,..........	86
Center,..............	27
South, ...	24
West,................	19
South West, ...	16
Total, 5 Districts,.	172

EAST HADDAM.

Districts.	*Enum. 1895.*
1, Center,...........	31
2, Landing, ...	44
3, Red Lane,.........	25
4, Up Town,..........	36
5, Bashan, ...	62
6, Town Hill,........	15
7, Wicket Lane,......	44
8, Leesville,.	17
9, Moodus, ...	87
10, Millington Green,.	18
11, Plains, ...	19
12, Olmstead, ...	8
13, Foxtown, ...	9
14, Tater Hill,.......	16
15, Millington West,.	11
16, Ackley,...........	15
17, Hadlyme,.........	21
Total, 17 Districts,.	478

ESSEX.

Consolidated,.........	348
Total, 1 District,..	348

KILLINGWORTH.

South West, ...	11
Center, ...	16
Pine Orchard, ...	9
Union, ...	21
Black Rock,..........	11
Stone House,........	11
Lane,................	25
Chestnut Hill, ...	7
Total, 8 Districts,.	111

MIDDLEFIELD.

Districts.	*Enum. 1895.*
1, North, ...	21
2, South, ...	70
3, East,..............	44
4, Falls,.............	45
Total, 4 Districts,.	180

OLD SAYBROOK.

Union, ...	252
Total, 1 District,..	252

PORTLAND.

1, ...	149
2, ...	636
3, ...	41
4, ...	38
5, ...	15
6, ...	165
Total, 6 Districts,.	1,044

SAYBROOK.

Union, ...	264
Total, 1 District,..	264

WESTBROOK.

Consolidated, ...	154
Total, 1 District,..	154

TOLLAND COUNTY.

TOLLAND.

1, ...	39
2, ...	31
3, ...	22
4, ...	17
5, ...	23
7 and 9,.............	25
8, ...	12
10, ...	13
11, ...	12
12, ...	16
13, ...	14
Total, 11 Districts,.	224

ANDOVER.

Union,...............	67
Total, 1 District,..	67

BOLTON.

Center, ...	17
North,...............	25
South, ...	23
South West,..........	16
North West,.........	11
Total, 5 Districts,.	92

COLUMBIA.

Center,..............	24
Chestnut Hill,........	18
Hop River Village,...	14
Pine Street, ...	14
North, ...	19
West, ...	21
South West, ...	7
Hop River,.....	19
Total, 8 Districts,.	136

COVENTRY.

1, ...	90
2, ...	31
3, ...	44
4, ...	28
5, ...	23
6, ...	29
7, ...	30
8, ...	27
9, ...	31
10, ...	9
Total, 10 Districts,.	342

ELLINGTON.

1, ...	44
2, ...	29
3, ...	40
4, ...	8
5, ...	15
6, ...	45
7, ...	8
8, ...	19
9, ...	15
10, ...	119
Total, 10 Districts,.	342

HEBRON.

First,................	55
Second,..............	22
Third, ...	13
Fourth,..............	36
Fifth,................	13
Sixth,.....	12
Eighth,.........	23
Ninth,...............	15
Tenth,...............	13
Eleventh,............	15
Total, 10 Districts,.	217

TOLLAND COUNTY — *continued*

MANSFIELD.

Districts.	*Enum. 1895.*
1, Mansfield Center,.	27
2, Mansfield Hollow,.	39
3, Spring Hill,......	15
4, Storrs,...........	25
5, Four Corners,.....	21
6, Merrow Station,..	20
7, Mansfield Depot,..	26
8, Eagleville, ...	51
10, ...	17
11, Chestnut Hill,....	24
12, Atwoodville,......	31
13, Mount Hope,.....	16
14, Gurleyville,.......	14
15, Wormwood Hill,..	9
Joint District,.....	3
Total, 14 Districts,.	338

SOMERS.

1, ...	41
2, ...	18
3, ...	21
4, ...	19
5, ...	20
6, ...	101
7	16
8, ...	6
9, ...	16
10, ...	7
Total, 10 Districts,.	265

STAFFORD.

Districts.	*Enum. 1895.*
1, Furnace Hollow,..	123
2, Springs and Foxville,	577
4, Street, ...	19
5, Staffordville,......	81
6, Washburn,........	46
7, Works,.....	5
8, Rockwell Hill,....	22
9, Hall,............	18
10, Village, ...	11
12, Square Pond,.....	24
13, Center,......... ..	63
14, Crow Hill,........	7
15, Lull, ...	6
16, Patten, ...	13
17, Kent Hollow,.....	14
Total, 15 Districts,.	1,029

UNION.

1, ...	21
2, ...	23
3, ...	13
4, ...	14
5, ...	6
6, ...	10
Total, 6 Districts,.	87

VERNON.

Districts.	*Enum. 1895.*
East,..............	892
West,...............	676
North East,, ...	100
South East,..........	18
Center, ...	75
South,...............	62
South West,.........	33
Talcottville,..........	51
North West,..........	11
Total, 9 Districts,.	1,918

WILLINGTON.

1, ...	33
2, ...	21
3, ...	15
4, ...	9
5, ...	17
6, ...	22
7, ...	22
8, ...	25
9, ...	48
Total, 9 Districts,.	213

AMOUNTS PAID BY STATE FOR LIBRARIES AND APPARATUS

Report of Year	Amount
1857,	$760.00
1858,	2,240.00
1859,	2,100.00
1860,	1,160.00
1861,	730.00
1862,	435.00
1863,	490.00
1864,	530.00
1865,	405.00
1866,	590.00
1867,	515.00
1868,	865.00
1869,	1,730.00
1870,	1,960.00
1871,	2,385.00
1872,	2,345.74
1873,	2,955.00
1874,	3,340 00
1875,	2,450.00
1876,	2,900.00
1877,	2,270.00
1878,	2,975.00
1879,	3,190.00
1880,	3,040.00
1881,	3,005.00
1882,	4,255.00
1883,	3,470.00
1884,	3,090.00
1885,	3,025.00
1886,	3,300.00
1887,	3,525.00
1888,	5,000.00
1889,	3,835.00
1890,	5,890.00
1891,	4,405.00
1892,	4,885.00
1893,	4,960.00
1894,	6,505.00
1895,	6,185.00
1896,	5,820.00
1897,	7,090.00
	$120,605.74

TABLE SHOWING ENFORCEMENT OF LAW RELATING TO ATTENDANCE, 1895–6

TOWNS	Number of cases of absence investigated	Number of families visited	RECOGNIZED EXCUSES		Number at work legally	Number absent illegally	Number at work illegally	Number sent to school	PROSECUTIONS		Number of truants	Number sent to Conn. School for Boys	Number sent to Industrial School for Girls	Number sent to Temporary Homes
			Number of cases of disability	Number cases of lack of clothing					Parents	Employers				
HARTFORD COUNTY														
Hartford	3	1				3	3	3	1					
Avon	30	22	2		2	25		24						
Berlin	4	3				4		4						
Bloomfield	60	14	3		14	13	13	13						
Burlington	40	48	4	6	2	55		57						
Canton	64	63	7	7	3	47	1	46	3					
East Granby	2	1				2		2						
East Hartford	8	6	1		1	6	3	6						
Farmington	96	94	18	8	13	54	2	51						
Glastonbury	4	2	3			1		1						
Granby	8	4	2	2										
Hartland	6	3	3											
New Britain	449	224	33	2	389	139	17	136	17		11	3		
Newington	34	7	8		3	15	12							
Plainville	2	2				2	2	2						
Rocky Hill	50	31			7	38		38						
Simsbury	39	39	1	1	1	37		31						
West Hartford	101	54	15	4	14	46	18	44	1		1	1		
Wethersfield	105	50	20	3	16	66	4	66	4		1			
Windsor	1								1		1	1		
Total, 20 towns,	1106	668	120	33	465	553	75	524	27		14	5		
NEW HAVEN COUNTY														
New Haven City	150	116	15	18	21	96	22	90			9	4	2	
South	10	5			1	7		7			2			
Cheshire	8	7				7	1	7						
Derby	21	13	2	1	2	16		13	1		2			1
East Haven	5	2			1	4		4	1					
Guilford	26	17		1		19								
Hamden	147	61	34	9	48	54	4	54	4		6			
Madison	15	7		4	3	12		12						
Meriden	19	15	1		2	16	2	16			1			
Milford	6	3				6		6						
North Branford	28	14	6	3	4	13		11						
North Haven	4	3	1			3		3						
Orange	6	6	1			5	1	5			2			
Oxford	1		1											
Waterbury	140	58	51	7	38	39	3	31			4	2		
Total, 14 towns	586	327	116	43	120	297	33	259	6		26	6	2	1
NEW LONDON COUNTY														
Norwich	20	16	3	3		13	3	13		2				
Bozrah	9	3				7		7	3					
Colchester	21	9	1	4	1	14	1	14						
East Lyme	14	10			1	10		10						
Franklin	2	2				2		2						
Griswold	142	54	19	10	1	15	6	15	1					
Ledyard	23	8				20		3						
Lisbon	10	6				9		9	1					
Lyme	5	3			1	4		4						
Montviile	72	39	8	6		31	6	31	7	3				
Old Lyme	39	20				39		4	1					
Preston	12	9		3		9	2	9	5					
Sprague	3	2	1			1		1						
Stonington	12	11		4		6	1	6	3			1		1
Total, 14 towns	384	192	32	30	4	180	19	128	21	5		1		1

TABLE SHOWING ENFORCEMENT OF LAW RELATING TO ATTENDANCE, 1895-6 — *Continued*

TOWNS	Number of cases of absence investigated	Number of families visited	RECOGNIZED EXCUSES			Number absent illegally	Number at work illegally	Number sent to school	PROSECUTIONS		Number of truants	Number sent to Conn. School for Boys	Number sent to Industrial School for Girls	Number sent to Temporary Homes
			Number of cases of disability	Number cases of lack of clothing	Number at work legally				Parents	Employers				
FAIRFIELD COUNTY														
Bridgeport	18	14	2	....	....	13	3	13	....	....	....	....	....	....
Danbury	1	1	....	....	1	....	....	....	....	....	....	....	....	....
Bethel	20	12	1	....	2	12	3	12	2	....	....	....	....	....
Darien	9	7	2	1	2	7	....	7	1	....	1	....	....	....
Fairfield	1	1	....	....	....	1	1	1	....	....	....	....	....	....
Newtown	5	2	....	....	....	3	1	3	....	....	....	....	....	....
Norwalk	19	13	3	2	1	14	....	14	....	....	3	2	....	....
Ridgefield	15	8	3	4	1	8	....	8	....	....	....	....	....	....
Total, 8 towns	88	58	11	7	7	58	8	58	3	....	4	2	....	....
WINDHAM COUNTY														
Brooklyn	103	42	....	....	....	....	....	....	....	....	....	....	....	....
Canterbury	18	11	1	....	1	15	7	15	1	....	....	....	....	....
Killingly	95	54	....	....	....	....	....	....	1	1	....	....	....	....
Plainfield	86	44	15	5	1	29	4	29	2	....	....	....	....	3
Sterling	31	18	....	1	3	20	9	20	1	....	....	....	....	1
Windham	38	66	11	4	5	25	11	25	....	....	....	....	....	....
Total, 6 towns	371	235	27	10	10	89	31	89	5	1	....	....	....	4
LITCHFIELD COUNTY														
Cornwall	38	11	3	....	15	8	6	8	2	....	....	....	....	....
North Canaan	6	6	....	....	....	6	....	6	....	....	....	....	....	....
Thomaston	2	1	....	....	....	2	....	2	....	....	....	....	....	....
Torrington	8	8	....	....	....	8	4	8	2	....	....	....	....	....
Washington	17	11	1	....	5	11	....	11	....	....	....	....	....	....
Winchester	3	2	....	2	....	1	....	....	1	....	1	1	....	....
Total, 6 towns	74	39	4	2	20	36	10	35	5	....	1	1	....	....
MIDDLESEX COUNTY														
Middletown	23	21	7	....	....	16	2	16	1	....	....	....	....	....
Haddam	21	9	5	5	2	14	1	14	....	....	....	....	....	....
Chatham	4	2	....	....	....	7	1	7	....	....	....	....	....	....
Chester	10	5	4	....	....	6	....	6	....	....	....	....	....	....
Essex	2	2	....	....	....	1	....	....	1	....	....	....	1	....
Killingworth	5	2	....	....	1	4	....	4	....	....	....	....	....	....
Old Saybrook	19	14	4	....	5	10	....	10	1	....	2	....	....	....
Portland	31	19	3	2	3	23	2	23	....	....	....	3	....	2
Total, 8 towns	115	74	23	7	11	81	6	80	3	....	2	3	1	2
TOLLAND COUNTY														
Tolland	3	1	....	....	....	2	....	2	1	....	....	....	....	....
Ellington	1	....	....	....	....	1	....	....	....	....	....	....	....	....
Stafford	5	3	1	....	....	3	1	3	....	....	....	....	....	....
Vernon	1	1	....	....	....	1	....	1	....	....	....	....	....	....
Willington	7	2	....	7	....	....	....	....	....	....	....	....	....	....
Total, 5 towns	17	7	1	7	....	7	1	6	1	....	....	....	....	....

TABLE SHOWING ENFORCEMENT OF LAW RELATING TO ATTENDANCE, 1895-6—*Continued*

COUNTIES	Number of cases of absence investigated	Number of families visited	RECOGNIZED EXCUSES			Number absent illegally	Number at work illegally	Number sent to school	PROSECUTIONS		Number of truants	Number sent to Conn. School for Boys	Number sent to Industrial School for Girls	Number sent to Temporary Homes
			Number of cases of disability	Number cases of lack of clothing	Number at work legally				Parents	Employers				
Hartford	1106	668	120	33	465	553	75	524	27	....	14	5	....	....
New Haven	586	327	116	43	120	297	33	259	6	....	26	6	2	1
New London	384	192	32	30	4	180	19	128	21	5	....	1	....	1
Fairfield	88	58	11	7	7	58	8	58	3	....	4	2	....	....
Windham	371	235	27	10	10	89	31	89	5	1	....	....	....	4
Litchfield	74	39	4	2	20	36	10	35	5	....	1	1	....	....
Middlesex	115	74	23	7	11	81	6	80	3	....	2	3	1	2
Tolland	17	7	1	7	....	7	1	6	1	....	....	....	....	....
Total	2741	1600	334	139	637	1301	183	1179	71	6	47	18	3	8

TABLE SHOWING ENFORCEMENT OF CHILD LABOR LAW, 1895–6

TOWNS	Establishments		Children under 14 Years of Age			Certificates of Age			Children 14 to 16					
	Visited	Inspected	Number employed	Number discharged	Prosecutions for employing	Town Clerk	Teacher	Parent	Number employed	Cannot read and write	Have local authorities acted	School accommodations	Reading-room	Evening School
HARTFORD CO.														
Hartford	17	15	2	2		4	3		115		Yes	Yes	Yes	Yes
Avon	1										......	Yes	No	No
Bristol	12	10							28		......	Yes	No	No
Canton	1	1							4	1	No	Yes	No	No
East Windsor	2	2	1	1				1	30	2	No	Yes	No	No
Enfield	4	4				1	7	20	69	3	......	Yes	No	No
Farmington	11	4						1	13		No	Yes	No	No
Glastonbury	5	3							18		......	Yes	No	No
Manchester	8	5							87		......	Yes	No	No
New Britain	15 3	 15	14 2	14 2		1	2	7	307	11	Yes	Yes	No	Yes
Plainville	4	3	1	1					8		No	Yes	No	No
Simsbury	2	2							9		No	Yes	No	No
Southington	5	4	1	1					14		No	Yes	No	No
Windsor	3	3							10		......	Yes	No	No
Windsor Locks	6	3	1	1					22	7	No	Yes	No	No
Total, 15 towns	99	74	22	22	....	6	12	29	734	24	......	......	......	......
N. HAVEN CO.														
New Haven	41	41	22	22			14	18	245	21	No	Yes	No	Yes
Ansonia	13	13							40		No	Yes	No	No
Beacon Falls	2										......	......	......	......
Branford	2	2	1	1					11		No	Yes	No	No
Cheshire	2	2	1	1							No	Yes	No	No
Derby	3	3							25		No	Yes	No	No
Guilford	1										......	......	......	......
Hamden	3	2							4		No	Yes	No	No
Meriden	11	10	2	2					52	2	No	Yes	No	Yes
Milford	2	1						1	4		No	Yes	No	No
Naugatuck	7	6							11		No	Yes	No	No
Orange	4	2							3		No	Yes	No	No
Seymour	6	4					8	2	21		No	Yes	No	No
Wallingford	9	9						3	36		No	Yes	No	No
Waterbury	37	35	6	6			71	10	212	10	No	Yes	No	Yes
Total, 15 towns	143	130	32	32	....		93	34	664	33	......	......	......	......
N. LONDON CO.														
New London		4							41		......	Yes	Yes	......
Norwich	5	5	3	3	2				45		......	Yes	Yes	......
Bozrah		2	1	1					17		......	Yes	No	No
East Lyme		1									......	Yes	No	No
Griswold	4	5	3	3					53		......	Yes	Yes	......
Montville	5	....	6	6	3						......	Yes	No	No
Preston		2							5		......	Yes	......	......
Sprague		1									......	Yes	No	No
Stonington		4	1	1					13		......	Yes	No	Yes
Voluntown		3							6		......	Yes	......	......
Total, 10 towns	14	27	14	14	5				180		......	......	......	......

TABLE SHOWING ENFORCEMENT OF CHILD LABOR LAW, 1895–6 — *Continued*

TOWNS	ESTABLISHMENTS		CHILDREN UNDER 14 YEARS OF AGE			CERTIFICATES OF AGE			CHILDREN 14 TO 16		Have local authorities acted	School accommodations	Reading-room	Evening School
	Visited	Inspected	Number employed	Number discharged	Prosecutions for employing	Town Clerk	Teacher	Parent	Number employed	Cannot read and write				
FAIRFIELD CO.														
Bridgeport	42	36	5	5	.....	2	5	2	283	11	No	Yes	Yes	Yes
Danbury	4	2	.....	.....	.....	.....	.....	.....	8	.....	No	Yes	No	Yes
Bethel	12	6	.....	.....	.....	.....	.....	.....	5	.....	No	Yes	No	No
Fairfield	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greenwich	2	2	1	1	.....	.....	3	8	12	1	No	Yes	No	No
Huntington	16	11	.....	.....	.....	.....	.....	.....	36	2	No	Yes	No	No
Newtown	2	2	1	1	.....	.....	.....	.....	1	.....	No	Yes	No	No
Norwalk	14	7	.....	.....	.....	5	9	1	51	.....	No	Yes	No	Yes
Stamford	3	3	.....	.....	.....	.....	.....	.....	13	.....	Yes	Yes	No	Yes
Westport	3	3	.....	.....	.....	.....	.....	.....	2	.....	No	Yes	No	No
Total, 10 towns	99	72	7	7	.....	7	17	11	411	14	.....	.....	.....	.....
WINDHAM CO.														
Brooklyn	2	1	2	2	.....	.....	.....	.....	49	.....	.....	Yes	No	No
Killingly	8	7	5	5	1	.....	.....	.....	37	.....	.....	Yes	Yes	No
Plainfield	2	7	4	4	.....	.....	.....	.....	72	.....	.....	Yes	No	No
Putnam	2	7	.....	.....	.....	.....	.....	.....	49	.....	.....	Yes	.....	No
Sterling	.....	2	.....	.....	.....	.....	.....	.....	1	.....	.....	Yes	No	No
Thompson	1	4	.....	.....	.....	.....	.....	.....	32	.....	.....	Yes	.....	No
Windham	4	10	5	5	.....	.....	.....	.....	115	.....	.....	Yes	Yes	No
Total, 7 towns	19	38	16	16	1	.....	.....	.....	355	.....	.....	.....	.....	.....
LITCHFIELD CO.														
New Hartford	3	3	16	16	1	.....	8	18	63	24	No	Yes	No	No
New Milford	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes	No	No
Norfolk	2	2	.....	.....	.....	.....	.....	.....	6	.....	.....	Yes	No	No
Plymouth	1	1	.....	.....	.....	.....	.....	.....	7	.....	.....	Yes	No	No
Thomaston	2	1	.....	.....	.....	.....	.....	.....	31	.....	.....	Yes	No	No
Torrington	11	11	3	3	.....	.....	.....	1	68	1	.....	Yes	No	No
Watertown	4	4	1	1	.....	1	2	.....	17	1	No	Yes	No	No
Winchester	18	9	.....	.....	.....	.....	1	.....	34	.....	.....	Yes	.....	.....
Total, 8 towns	42	32	20	20	1	1	11	19	226	26	.....	.....	.....	.....
MIDDLESEX CO.														
Middletown	6	6	1	1	.....	.....	9	11	63	2	No	Yes	No	No
Haddam	2	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....
Chatham	6	5	.....	.....	.....	.....	.....	.....	2	.....	No	Yes	No	No
Cromwell	1	1	.....	.....	.....	.....	.....	.....	1	.....	No	Yes	No	No
East Haddam	11	6	.....	.....	.....	.....	.....	.....	3	.....	No	Yes	No	No
Essex	2	1	.....	.....	.....	.....	.....	.....	3	.....	No	Yes	No	No
Middlefield	2	2	.....	.....	.....	.....	3	3	9	.....	No	Yes	No	No
Portland	2	2	2	2	.....	3	3	5	16	3	No	Yes	No	No
Saybrook	2	1	.....	.....	.....	.....	.....	.....	1	.....	No	Yes	No	No
Total, 9 towns	34	24	3	3	.....	3	15	19	102	5	.....	.....	.....	.....

TABLE SHOWING ENFORCEMENT OF CHILD LABOR LAW, 1895–6 — *Continued*

TOWNS	ESTABLISHMENTS		CHILDREN UNDER 14 YEARS OF AGE			CERTIFICATES OF AGE			CHILDREN 14 TO 16		Have local authorities acted	School accommodations	Reading-room	Evening School
	Visited	Inspected	Number employed	Number discharged	Prosecutions for employing	Town Clerk	Teacher	Parent	Number employed	Cannot read and write				
TOLLAND CO.														
Tolland	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes	No	No
Columbia	.....	1	.....	.....	.....	.....	....	.....	.....	.....	.....	Yes	No	No
Coventry	5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes	No	No
Hebron	1	.....	.....	.....	.....	....	.....	.....	5	.....	.....	Yes	No	No
Mansfield	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes	No	No
Somers	.....	1	.....	.....	.....	....	.....	.....	8	.....	.....	Yes	No	No
Stafford	2	10	.....	....	.....	.....	.....	.....	9	.....	.....	Yes	No	No
Vernon	1	14	.....	.....	.....	.....	.....	.....	16	.....	.....	Yes	.....	.....
Willington	.....	1	.....	.....	.....	.....	.....	.....	6	.....	.....	Yes	No	No
Total, 9 towns	9	33	....	.....	.....	.....	.....	.....	44	.....	.....	.....	.....	.....

SUMMARY BY COUNTIES

TOWNS	ESTABLISHMENTS		CHILDREN UNDER 14 YEARS OF AGE			CERTIFICATES OF AGE			CHILDREN 14 TO 16	
	Visited	Inspected	Number employed	Number discharged	Prosecutions for employing	Town Clerk	Teacher	Parent	Number employed	Cannot read and write
Hartford	99	74	22	22	......	6	12	29	734	24
New Haven	143	130	32	32	......	....	93	34	664	33
New London	14	27	14	14	5	....	....	....	180	......
Fairfield	99	72	7	7	......	7	17	11	411	14
Windham	19	38	16	16	1	....	....	....	355	......
Litchfield	42	32	20	20	1	1	11	19	226	26
Middlesex	34	24	3	3	......	3	15	19	102	5
Tolland	9	33	......	......	.....	....	....	....	44	......
Total	459	430	114	114	7	17	148	112	2,716	102

STATE TEACHERS' EXAMINATIONS

FOR

ELEMENTARY CERTIFICATES

First Day

A. M. —	9.00 to 9.30	SPELLING
	9.30 to 10.30	LITERATURE
	10.30 to 12.30	ARITHMETIC
P. M. —	1.30 to 2.30	WRITING
	2.30 to 3.30	READING
	3.30 to 6.00	ELEMENTARY SCIENCE AND GEOGRAPHY

Second Day

A. M. —	9.00 to 11.30	HISTORY AND CIVIL GOVERNMENT
	11.30 to 12.30	DRAWING (optional)
P. M. —	1.30 to 3.00	GRAMMAR
	3.00 to 4.30	PHYSIOLOGY
	4.30 to 5.30	VOCAL MUSIC (optional)

Preliminary papers should be written with ink and sent one week before the examination.

Examinations cannot be given in the different branches at any other hours than those mentioned above.

Examinations begin promptly at 9 o'clock.

GENERAL DIRECTIONS AND INFORMATION

1 Write the date and place of examination and your *number* on the outside of the envelope. Fill out the Information Blank and put it in the envelope.

2 Write the date and place of examination, and *your number* and name of study at the top of each page of your work.

3 Write only on one side of the paper.

4 Number the answers to correspond with the questions.

5 Leave a margin at the left.

6 In Arithmetic write the operation as well as the answer. Answers alone will not be accepted.

7 The printed questions must be attached to papers containing answers.

8 The result of the examination will be communicated to you within one month.

9 Candidates for entrance to Normal School will be informed of their examinations within ten days.

10 Do not fold the papers.

11 Examinations will not be held at any other hours than those mentioned on the programme.

SPELLING

I

1 What is a letter? A syllable?

2 What is spelling?

3 Why is spelling taught?

4 What is the use of a spelling-book? A dictionary?

5 Arrange the following words in alphabetical order: dew, far, fan, commence, believe, dike, beseech, commerce, besiege, celery, salary, ally, advise, alley, advice.

6 Write the dictated words.

Write the following words at dictation

(*a*)

separate
certificate
convenience
substitute
intermediate
candidate
scarcely
precede
necessary
pamphlets
recommendation
kindergarten
preparation
temperature
elementary
judgment
enthusiastic
grammar
laboratory
vaccination

(*b*)

separate
necessary
pamphlets
recommendation
kindergarten
preparation
temperature
pried
icicle
census
tariff
peaceable
exceed
anemone
to-day
acknowledgment
porous
elementary
judgment
enthusiastic
grammar
laboratory
vaccination
comrade
wholesome
embarrassment
miscellany
vein
maintenance
finance
exaggerate
accede
San Francisco
luggage
certificate
convenience
substitute
intermediate
candidate
scarcely
privilege
scenery
brilliant
collision
laboratory
maintain
liar
extraordinary
arrangement
Milwaukee

ARITHMETIC

I

1 Give in order the reasons why arithmetic should be taught in public schools.

2 State briefly what parts of arithmetic you regard as most important, and give reasons.

3 Make and receipt a bill containing the following items: 12 lbs. rice at 8c. a lb.; 6 lbs. raisins at 20c. a lb.; 6 lbs. currants at 8c. a lb.; 1 cheese, 30 lbs., at 8½c. a lb.; 25 lbs. coffee at 25c. a lb.; 3 bottles olive oil at 75c. a bottle; 50 lbs. sugar at 6¼c. a lb.; 1½ dozen borax at 18c. a dozen; 10 lbs. crackers at 10c. a lb.

4 (*a*) Multiply 251,000 by 160, leaving all the work.
(*b*) Divide 750,000 by 2,500, leaving all the work.

5 A man owning ⅓ of a ship sold ½ of his share for $10,000. What was the value of the ship?
(*a*) Work the above example, leaving all the operations on your paper.
(*b*) Explain the example.
(*c*) State definitely what advantage school children would gain from working similar problems.

6 What is the difference between ½ of 20 and 20 divided by ½? Perform and explain.

7 (*a*) Multiply thirty-six ten thousandths by one and two hundredths.
(*b*) Divide two and fifty-six hundredths by sixteen ten thousandths.

8 (*a*) What per cent. of a number is $\frac{1}{3}$ of it? $\frac{3}{5}$? $\frac{7}{8}$? $\frac{7}{50}$? $\frac{1}{6}$?
(*b*) 1 per cent. of a number is equal to what fraction of it? 10%? 15%? 40%?
(*c*) What fractions are equal to the following: 12%? $\frac{1}{4}$%? $\frac{1}{8}$%? $33\frac{1}{3}$%?
(*d*) $\frac{3}{5}$ = what per cent. of $\frac{4}{5}$?

READING

I

1 At what age should a child be taught to read? Give reasons for answers.

2 What should form the child's first reading lessons? Give reasons for answer.

3 What should govern the choice of reading matter after a child has been taught to read?

4 What is the difference between a young child's reading and your reading?

5 What is reading?

6 Which is the more serious question, to teach children how to read or what to read?

II

1 Give a plan for assisting children to *visualize* the scenes and characters described in their reading lessons.

2 What preparation should the teacher make for a beginning reading lesson? What preparation should be given to the pupil for the beginning lessons?

3 Name plans for improving the poor readers among older pupils.

4 What relation does reading sustain to the other subjects of the school course?

5 Name twenty books you would select for pupils. How and when would you use these books?

GEOGRAPHY

I

1 What effect does the absence of an east and west range in North America have on its distribution of vegetation?

2 Why is New York Bay so important a harbor?

3 Compare the eastern and western halves of the United States in surface, climate, resources, and occupations.

4 What advantages for marine commerce does Europe derive from its outline and its river systems?

5 (*a*) When are our days and nights of equal length? Why?
(*b*) What determines the position of the tropics and polar circles?

6 Write a brief account of the natural resources of Connecticut.

7 Name ten books of reference to be used in teaching Geography in grammar grades.

8 Contrast the condition of rainfall in Europe and North America, and explain the differences.

II

1 How do you account for the fact that so many large streams have their origin in the Rocky Mountains, when there is so arid a region to the west?

2 Locate the following: Constantinople, Hamburg, Paris, London, Liverpool, St. Petersburg, Denver, Philadelphia.

3 What causes have determined the location of large towns in the highlands of the United States?

4 Draw a map of Connecticut. Locate principal rivers and cities. Show areas of chief agricultural and manufactured products.

5 Account for the variation in the distribution of light and heat over the earth.

6 Show by a figure why our warm season is longer than our cold season.

7 Write a brief account of the exports and imports of the United States.

8 Name five manufacturing cities in the United States and account for the principal product of each.

9 Name the four rivers of the world which are of most importance as navigable channels. Give reasons for your answer.

ELEMENTARY SCIENCE

I

(Write on one topic)

Physics —

1 Explain the principles underlying the heating and ventilating a room.

2 What work in Physics would help a child understand winds and ocean currents?

3 Describe an experiment showing the expansion of a solid by heat and mention common phenomena explained by it.

4 Explain the lifting pump. Draw a diagram showing position of valves when piston is being raised.

5 What is the relation of water vapor to climate?

Geology —

1 What geological truths might be taught from the gutter after a rainstorm?

2 What would you teach about quartz, mica, and feldspar? State reasons for the selection of these three minerals.

3 What effects can you mention of the action of rain, running water, and ice on land surfaces?

4 What is the importance of carbonic acid as a geological agent?

Chemistry —

1 State the chemical truths necessary to the intelligent teaching of Physiology.

2 What is the relation of carbonic acid to the disintegration of rocks and to cave formation?

3 What is the object of an experiment?

4 Mention common phenomena explained by chemical truths.

HISTORY

I

1 Write a brief account of the settlement of Connecticut.

2 How did the French and Indian war prepare the colonists for the Revolution?

3 Discuss three causes of the Revolution.

4 Explain the following: Protective Tariff; Resumption of Specie Payment; Credit Mobilier; The Spoils System.

5 What controversies with England has the United States had since 1800?

6 What was the Compromise of 1850?

7 Name ten noted men and tell what each did for the United States.

8 Name ten books valuable for reference in teaching United States History.

9 Outline briefly your method of teaching History in the primary grades and in the grammar grades.

II

1 What important part has Connecticut played in the history of the United States?

2 What was the condition of the country from 1783 to 1789?

3 Draw a map showing the territorial growth of the United States. Give the history of each acquisition.

4 Connect each of the following names with the history of the United States: Garrison, Phillips, Hamilton, Calhoun.

5 Discuss briefly three causes of the Civil War.

6 Compare the condition of the North and the South in 1861.

7 Name ten books of reference to be used in teaching United States history in grammar schools.

8 Write a brief account of the Southern states during the period of "Reconstruction."

CIVIL GOVERNMENT

I

1 (*a*) What, if any, difference was made in the government of the State of Connecticut by the American Revolution?
  (*b*) Tell what you know about the government of Connecticut before the Revolution.
  (*c*) What reasons were there for the adoption of the Connecticut Constitution, and when was it adopted?

2 Describe as fully as possible the difference between the manner of selection of the President of the United States and the Prime Minister of Great Britain.

3 Describe the difference between the government of a Connecticut city and a Connecticut town.

4 State fully —
  (*a*) How money is obtained to pay the expenses of the United States government?
  (*b*) How the money is obtained to pay the expenses of your town government?

5 (*a*) What is meant by the legislature, and how is it chosen?
  (*b*) Where does it meet?

6 What is a will? An executor? An administrator?

GRAMMAR

I

1 What are inflections? Give illustrations of inflections in the English language. Has English many inflections or not?

2 Define Case, Person, Mode, Tense. According to the definitions you have given how many cases has the noun *man*? The pronoun *he?* How many modes and tenses has the verb *love?* What is the difference between a tense and a tense phrase?

3 "Nobody could help laughing at the child's notion of leaving a warm bed, and dragging them from a cheerful fire, to visit the basin of the flume, — a brook which tumbles over a precipice, deep within the Notch."
  (*a*) What kind of a sentence, simple, compound, or complex? If compound what are the independent clauses? If complex what is the principal clause? What the dependent?
  (*b*) Parse *laughing*, *dragging*, *which*, *deep*.

4 Which of the following sentences are incorrect? In what respect are they incorrect?

Homer as well as Virgil were studied by him

He pays no regard to those kind of things.
Thou art he who hast commanded us?
Do you remember my cousin who we thought had settled in Australia?
The happiness or misery of men's lives depend very much on their early training.
We sorrow not as them that have no hope.
Whom do you take me to be?

5 Why should English grammar be taught? How far does a knowledge of English grammar enable one to write and speak well? Why should it be taught in schools? In what way do you think children can be taught to write and speak well?

II

1 Write a brief abstract of some book, paying special attention to paragraphing, capitalization, punctuation.

2 Write a business letter ordering school supplies. Give full headings, signature, and envelope address.

3 Outline your method of teaching Language.
- (*a*) Correction of mistakes in oral language.
- (*b*) Correction of mistakes in written language.
- (*c*) Method of securing good expression in oral and written language.

4 Supply words in following blanks and give reasons:
- (*a*) Each pupil may hold up —— hand.
- (*b*) It must be —— who are ringing the bell.
- (*c*) He rides —— than the wind.
- (*d*) The lady called you and ——
- (*e*) —— did you say is to be there?

5 Write:
- (*a*) A quoted question.
- (*b*) A quotation within a quotation.
- (*c*) A broken quotation.

6 (*a*) How would you teach a child to use correctly shall and will? May and can?
- (*b*) To what extent would you teach rules of syntax? Give your reasons.

III

1 What would be your object in teaching English (excluding Literature) in the lower schools?

2 Outline your plan of teaching children to express themselves, (*a*) in oral form, (*b*) in written form.

3 To what extent would you teach technical grammar? Your object in teaching it?

4 Would you teach children to use an outline? How? Why?

5 Mention ten of the most common errors in English. State your method of correcting them in children.

6 What is the most effective way of acquiring a good and idiomatic style.

7 Write one page on *one* of the following topics:
- (*a*) Character of Shylock.

(*b*) Character of John Bunyan.
(*c*) Goldsmith with children.
(*d*) Shall we study Biography in the lower schools?

PHYSIOLOGY

I

1 What is the relation between a proper supply of oxygen and the order in a schoolroom?

2 What arrangement of seating and lighting is best for the eyes of the pupils?

3 Outline briefly what you would teach about stimulants and narcotics, showing clearly the relation of this subject to habit.

4 Name four bodily defects common to school children and describe exercises for remedying them.

5 Give an account of the skin as an organ of excretion. What habits should be formed as the result of a knowledge of these facts? Why should sitting in damp clothing be avoided?

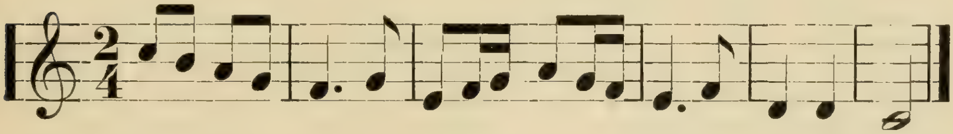
MUSIC

I

1 In the keys of D and E write the twelve intervals found within the octave.

2 How would you get one (do) in the keys of D, A, E♭ and B♭ from C pitch-pipe?

3 State how you would teach the following difficulties in *time*, to beginners, in this work:



4 Give an outline of a first lesson in sight reading.

5 What are three important things to look for in selecting songs for children?

6 What can be done for children who are inclined to flat?

STATE NORMAL SCHOOL

ENTRANCE EXAMINATION, 1895.

ARITHMETIC

I

1 At $5.50 a ton what will it cost to divide $8\frac{1}{2}$ tons of coal among five poor families? How much coal will each family receive?

2 Multiply four and five-thousandths by thirteen hundredths, and divide the product by fifteen hundredths.

3 Find the cost of carpeting a room 15 feet by 18 feet with carpet one yard wide at 85 cents per yard.

4 How many tiles 6 inches square will be required for the floor of a room $5\frac{1}{3}$ yards by $6\frac{5}{6}$ yards?

5 What will it cost to excavate a cellar 48 feet long, 30 feet wide, and 9 feet deep, at 15 cents per cubic yard?

6 A man buys a farm for $1,500, and sells it for $1,875, what per cent. does he gain?

II

1 A rectangular farm containing 100 acres is 100 rods wide. Required its length.

2 State the shortest way of multiplying an integer by 100. State the shortest way of multiplying a decimal by 100.

3 A man buys two houses for $4,500 each, and sells one at an advance of $33\frac{1}{3}\%$, and the other at a loss of $33\frac{1}{3}\%$; what is his gain or loss on both?

4 Face of note, $250; date of note, May 10, 1896; rates of interest, 6%. Find interest to date.

5 A man owes $5,050. His assets are $485.75. How many cents can he pay on a dollar?

6 Define:
- (*a*) Quotient.
- (*b*) Multiplicand.
- (*c*) Product.
- (*d*) Ratio.
- (*e*) Assessment.
- (*f*) Interest.
- (*g*) Commission.

7 $\frac{4}{5}$ is what part of $\frac{5}{6}$?

8 How much does a grocer who gives $15\frac{5}{8}$ oz. for a pound cheat a customer who buys $100 worth of goods?

III

1 How much butter at $$\frac{3}{8}$ a pound will pay for $16\frac{1}{2}$ yd. of cloth at $62\frac{1}{2}$c a yard?

2 If 750 lb. of plaster cost $8.50, what will 6¾ tons cost?

3 A lumber merchant sold 83,500 laths at $0.75 a hundred, and 1,750 ft. boards at $18.50 per thousand. What did he receive?

4 What will it cost to fence a lot of land 8¼ rods square at 4c. a foot?

5 Wheat that cost $0.60 a bushel was sold for $0.75 a bushel. What was the gain per cent.?

6 A fruit merchant bought 67½ crates of peaches for $75, but was obliged to sell them at a loss of 10%. For what were they sold per crate?

7 Which are cheaper, oranges at $2.50 a hundred or at 28c. a dozen? How much would be saved by buying 50 doz. at the lower rate?

8 What is the interest of $840 for 1 year, 8 months at 4%.

9 Make out a bill such as you would give if you had worked for Jas. Brown three days at $2.25 a day. Show how the bill would be receipted when paid.

ENGLISH

I

1 Write, in correct form, the following:

(1) I have got some new books.
(2) Who were you talking with?
(3) He don't seem to know that it is me.
(4) Every one must do their own work.
(5) I think that he is the tallest of the two.
(6) He can walk much quicker than I.
(7) I think he hadn't ought to do that.
(8) How I wish she was here.
(9) Can I go home now?
(10) I don't think she went in the house.
(11) She has finished the work she begun yesterday.
(12) She looks beautifully in that gown.
(13) I will be ten years old to-morrow.
(14) We seen her here yesterday.
(15) I have corrected your papers, and not one of them are right.

2 Explain the errors in 6, 7, 8, 10, 11, 15, of the above. Write not more than one line for each explanation.

3 Write sentences containing the present, past, and past participle forms of the following verbs: Come, do, lay, run, see, sing.

4 Tell briefly the story of one of the books you have read. Write not more than one page, giving special attention to:

(1) Spelling.
(2) Punctuation.
(3) Grammatical construction.
(4) Clear expression.
(5) Neatness and arrangement of work.

II

1 Name the parts of speech in the following lines:

(*a*) I am monarch of all I survey,
My right there is none to dispute.
(*b*) It is better said than done.

2 Change the adjective phrases in the following to nouns in the possessive case:

The cunning of the foxes.
The bleating of the sheep.
The testimony of the witnesses.
The play of the children.
The organs of Mason and Hamlin.
The poems of Longfellow and Whittier.

3 Punctuate the following selection:

rip bethought himself a moment and inquired wheres nicholas vedder there was a silence for a little while when an old man replied in a thin piping voice nicholas vedder why he is dead and gone these eighteen years there was a wooden tombstone in the churchyard that used to tell all about him but thats rotten and gone too wheres brom dutcher oh he went off to the army in the beginning of the war some say he was killed at the storming of stony point others say he was drowned in a squall at the foot of anthonys nose I dont know he never came back again.

4 Correct the following:

(1) He thinks he does but he don't.
(2) Will we all come now?
(3) She has laid there a long time.
(4) Each of the children may raise their hands.
(5) They have asked you and I to the party.

5 Write a letter of not less than ten lines to the principal of the Normal School you wish to attend, making application for admission, and stating your purpose in entering that institution.

III

1 Use the following words correctly in sentences: did, done, doesn't, don't, lie, lain, lay, laid, sat, set.

2 Write a letter to a publisher ordering six different books.

3 Write a brief account of a book with which you are familiar. Pay special attention to spelling, punctuation, capitalization, paragraphing.

4 Supply pronouns in the following blanks:

(*a*) With —— are you going?
(*b*) Mary wrote to —— and ——.
(*c*) —— do you think it is?
(*d*) It is —— she said.
(*e*) Between —— and —— he is dishonest.

5 Punctuate:

I would send such a man said he in quest of the Golden Fleece.
The House of the Seven Gables was warmly welcomed both at home and abroad
On one occasion says Whittier I was told that a foreigner had applied to my mother for lodging What if a son of mine was in a strange land she said to herself.

HISTORY

I

Write ten lines on each of the following topics :

Colonial life.
Influence of George Washington.
Results of the Revolution.
Causes of the Civil War.

II

1 Who founded the colony of New Netherlands? When?
What was the original name of New York City?
Under what circumstances was it changed to New York?

2 What was the extent of the United States at the close of the Civil War? What additions have been made since, and under what circumstances were they made.

3 Name some of the events in the slavery struggle in the United States.

4 What part have the following men played in the history of the United States: Webster, Franklin, Monroe, Jefferson, Hamilton.

5 Who was president of the United States during the Civil War?
Who was commander-in-chief of the union forces at the close of the Civil War?
What are the great political parties of to-day, and what do they stand for?

III

1 What territory in North America did England, France, and Spain claim? Upon what discoveries were these claims based?

2 Write a brief account of the settlement made by the Pilgrims.

3 Connect the following names with events in our history: Lincoln, Franklin, Clay, Hamilton, Garrison.

4 Explain three causes of the Revolutionary War.

5 Compare the condition of the North and the South in 1861.

GEOGRAPHY

I

1 Locate the following cities: Pittsburg, Chicago, New Orleans, San Francisco, Minneapolis. What are their leading industries?

2 Mention three important minerals of the United States. Where found?

3 Draw a map of Connecticut and indicate on it the location of five important cities. Why important?

4 What countries lead in the production of wheat? corn? cotton?

5 What would be the probable route and cargo of a vessel sailing from Melbourne to Hamburg? Rio Janeiro to Boston? Bombay to Liverpool?

II

1 Mention some of the most important river systems of the world.

2 What are chief exports and imports of the United States? The chief seaports?

3 By what routes can products be sent from Chicago to the coast?

4 Write half a page about England, describing physical features, products, industries, and large cities.

5 What do you mean by latitude? longitude? degree? meridian?

III

1 Locate Philadelphia, Chicago, San Francisco, Baltimore, New Orleans.

2 Name the river systems of North America and the principal river of each.

3 Write a brief account of the natural resources of Connecticut.

4 Locate the cities of Europe with which the United States is connected by steamship lines.

5 Locate five places of interest to tourists in the United States.

PUBLIC ACTS RELATING TO EDUCATION

Passed January Session, 1895

CHAPTER XVII

An Act concerning Printing of Reports of the State Board of Education

The comptroller shall cause to be printed at the expense of the state, annually, such number of copies of the report of the state board of education as said board may by vote determine to be necessary; *provided*, that the number printed annually shall not exceed six thousand.

CHAPTER XXI

An Act amending an Act concerning Education

Section 2223 of the general statutes is hereby amended to read as follows: The teacher of every public school shall correctly keep the school register provided by the state, in the manner and form required by the state board of education, and at the end of each school term, and, before said teacher shall leave such school, shall certify in writing to the correctness of the same, and immediately deliver the same to the secretary of the board of school visitors or town school committee or board of education of the town or district in which such school is located; and no teacher shall be entitled to receive any pay unless such register shall have been kept and certified during the time for which any payment may be made.

CHAPTER XXIV

An Act amending an Act relating to Public Libraries

SECTION 1. Section eight of chapter CLXXVIII of the public acts of 1893 is hereby amended so that it shall read as follows: No member of said library committee shall receive any compensation for his services as such member, but the committee may expend a sum not exceeding five hundred dollars annually for clerical assistance and incidental and necessary expenses incurred in the discharge of its duties.

SEC. 2. This act shall take effect from its passage.

CHAPTER XXVII

An Act concerning the Taking of Land for School Purposes

Section 2190 of the general statutes is hereby amended to read as follows:

No school district, society, city, or town shall take for school purposes the land of any ecclesiastical society, upon any part of which a church building has already been erected, without the consent of such ecclesiastical society, or any land devoted to or used for cemetery or burial purposes.

CHAPTER LXVII

An Act concerning School Visitors and Town Committees

SECTION 1. No person elected to the office of school visitor or town committee shall be employed as teacher in the town where he or she is school visitor or town committee.

SEC. 2. If any school visitor or town committee shall be employed contrary to the provisions of the preceding section, the office of school visitor or town committee to which he was elected shall become vacant, and his successor shall be appointed under the provisions of section 2121 of the general statutes.

CHAPTER LXXV

An Act concerning Education

Section 2237 of the general statutes is hereby amended by striking out, in the sixteenth line, the words, "within fifteen days after the close of the school year," and inserting in lieu thereof the words, "on or before the fourteenth day of July in each year."

CHAPTER LXXXIV

An Act concerning Flags upon Public Buildings and Schoolhouses

SECTION 1. It shall be unlawful to display the flag or emblem of any foreign country upon the outside of any state, county, city, or town building, or public schoolhouse within this state; *provided*, *however*, that when any foreigner shall become the guest of the United States, or of this state, upon proclamation by the governor, the flag of the country of which such public guest shall be a citizen may be displayed upon public buildings, but not upon public schoolhouses.

SEC. 2. A violation of this act shall subject the offender to a fine of not less than twenty-five nor more than one hundred dollars.

SEC. 3. This act shall take effect from its passage.

CHAPTER CXVIII

An Act concerning the Age Limit for the Employment of Children

SECTION 1. Section 1753 of the general statutes is hereby amended by striking out in the first line of said section the word "thirteen" and inserting in lieu thereof the word "fourteen," so that said section as amended shall read as follows: No child under fourteen years of age shall be employed in any mechanical, mercantile, or manufacturing establishment.

SEC. 2. Section 1754 of the general statutes is hereby amended by striking out the word "thirteen" wherever it occurs therein and inserting in lieu thereof the word "fourteen."

SEC. 3. All acts and part of acts inconsistent herewith are hereby repealed.

CHAPTER CXIX

An Act concerning the Duties of Towns in Relation to Schools

Section 2118 of the general statutes is hereby amended to read as follows: Public schools shall be maintained for at least thirty-six weeks in each year in every school district, and no town shall receive any money from the state treasury for any district unless the school therein has been kept during the time herein required; but no school need be maintained in any district in which the average attendance of persons at the school in said district during the preceding year, ending the thirty-first day of August, was less than eight. In said schools shall be taught, by teachers found duly qualified by the school visitors, reading, spelling, writing, English grammar, geography, and arithmetic, and such other studies, including training in manual arts, as may be prescribed by the board of school visitors; and said schools shall be open to all children over four years of age, in the respective districts, without discrimination on account of race or color.

CHAPTER CXXX

An Act concerning School Districts

SECTION 1. Section 2158 of the general statutes is hereby amended to read as follows: When it is proposed to form, alter, unite, or dissolve any school district or districts, notice that such change is proposed shall be posted on the schoolhouse in each school district to be affected, or, if there be no schoolhouse in any of such school districts, at the usual place for posting warnings for meetings of such districts, and printed in a newspaper or newspapers published in the town to which such districts or any one of them may belong, if any there be, and a copy of the same shall be left with the clerk of each of said districts at least fifteen days before the town is called to act upon the proposition.

SEC. 2. All acts and parts of acts inconsistent herewith are hereby repealed.

CHAPTER CXXXI

An Act concerning School Districts

SECTION 1. No committee of any school district of this state, elected under the provisions of section 2175 of the general statutes, shall employ any teacher or teachers, or do any other business for said district for a longer period of time than that for which he may have been elected, without first obtaining at a meeting of said district legally called for that purpose a majority vote in favor of such proposed action.

SEC. 2. This act shall take effect from its passage.

CHAPTER CXXXIV

An Act concerning Instruction of Children

Section 2102 of the general statutes is hereby amended to read as follows: All parents and those who have the care of children shall bring them up in some honest and lawful calling or employment, and instruct them or cause them to be instructed in reading, spelling, writing, English grammar, geography, and arithmetic; and every parent or other person having control of any child over eight and under sixteen years of age, whose physical or mental condition is not such as to render its instruction inexpedient or impracticable, shall cause such child to attend a public day school regularly during the hours and terms while the public schools in the district wherein such child resides are in session, or elsewhere, to receive thorough instruction during said hours and terms in the studies taught in said public schools. But children over fourteen years of age shall not be subject to the requirements of this section while lawfully employed to labor at home or elsewhere, but this section shall not be construed to exempt any child who is enrolled as a member of a school from any rule concerning irregularity of attendance which has been enacted by the town school committee, board of visitors, or board of education having control of the school.

CHAPTER CXXXV

An Act concerning Examination of Teachers

The certificate of qualification to teach issued under section 2222 of the general statutes shall be accepted by boards of school visitors, boards of education, and town school committees in lieu of the examination required by section 2135 of the general statutes.

CHAPTER CCX

An Act concerning Evening Schools

Chapter CCXXVII of the public acts of 1893 is hereby amended to read as follows:

SECTION 1. Every town and school district having ten thousand or more inhabitants shall establish and maintain, in addition to the schools required by law, evening schools for the instruction of persons over fourteen years of age, in such branches as the proper school authorities of the town or district shall prescribe; *provided*, that this act shall not apply to any district located in a town which maintains such schools.

SEC. 2. Boards of school visitors, town school committees, or boards of education, as the case may be, shall provide rooms, examine, employ, and pay the teachers, and shall have all the powers and duties in relation to the schools established under this act as by law belong to town school committees in connection with day schools.

SEC. 3. No person over fourteen and under sixteen years of age, who cannot read and write, shall be employed in any town where evening schools are established under the provisions of this act, unless he can produce every school month of twenty days a certificate from a teacher of an evening school established under this act, showing that he has attended such school eighteen consecutive evenings in the current school month, and is a regular attendant. Any person who shall employ a child contrary to the provisions of this section shall be fined not more than fifty dollars, and it shall be the duty of the state board of education to enforce the provisions of this act as provided in section 1755 of the general statutes.

SEC. 4. The board of school visitors, board of education, or town school committee, as the case may be, of any town wherein evening schools are established and maintained under this act shall annually, on the first Monday in July, certify to the comptroller the average number of scholars attending such schools within the current school year, and the comptroller shall thereupon draw his order on the treasurer of the state in favor of such board of education, board of school visitors, or town school committee, for the use of such schools, in the sum of two dollars and a quarter for each scholar included in the number so certified, and the treasurer shall pay the same upon presentation. No money shall be paid under the provisions of this section unless such evening schools have been maintained for at least seventy-five sessions in each school year, nor until the board of school visitors, board of education, or town school committee has reported to the state board of education concerning the condition and progress of said schools.

SEC. 5. If any board of school visitors, board of education, or town school committee shall deem it inexpedient or impracticable to establish a school under the provisions of this act, and shall, on or before the fifteenth day of October in any year, apply in writing to the state board of education to be relieved from the provisions of this act, and if said board shall, upon investigation, find the application to be reasonable, and shall so state in writing, the town or district so applying by its board of visitors, board of education, or town school committee, shall not be subject to the provisions of this act until the beginning of the school year following the date of the application.

SEC. 6. Any town of less than ten thousand inhabitants may, at its annual town meeting, vote to establish evening schools under the provisions of this act.

CHAPTER CCXXII

An Act concerning Schools in County Homes

SECTION 1. The children legally committed to county homes shall be enumerated in the districts in which said county homes are located, as provided in section 2224 of the general statutes, as amended by Chapter XXVI of the public acts of 1889, but the enumerator shall make a separate list of the children in the county home, and certify said list to the school visitors of the town as provided in section 2225 of the general statutes, as amended by Chapter XXVI of the public acts of 1889.

SEC. 2. The county commissioners may establish schools at the county homes if in their opinion it is for the interest of the children. In case the county commissioners establish and maintain such a school in any county, the treasurer of the town in which the school is located shall pay to the county commissioners from the amount paid to the town by the comptroller that proportionate part which was derived from the enumeration of the children in the county home. Said commissioners shall apply the sum so named to the payment of the teacher, and to no other purpose. Said schools shall be open during the same days and hours and terms as the schools in the district in which the school is located, and the branches taught shall be those prescribed by the proper school officers for the schools of the town.

SEC. 3. The county commissioners may employ and pay as teachers of the schools at the county homes, persons found qualified as provided in this section, and shall provide books for the children and apparatus for teaching. It shall be the duty of the state board of education to examine the persons employed by the county commissioners, and if the candidates are found qualified in respect of character, education, and teaching ability, to give them certificates authorizing them to teach in said schools, and said board may revoke such certificate, and the county commissioners shall not employ any person who does not hold such certificate. The said board shall appoint an acting visitor or acting visitors who shall inspect and examine said schools at least twice in each term, and the county commissioners shall not pay any teacher nor maintain said school unless said acting visitor shall certify in writing that said school has been for each month kept in conformity to the laws relating to public schools.

CHAPTER CCXXVII

An Act concerning the State Board of Education

From and after the passage of this act, the secretary of the state board of education shall be *ex officio* a member of said board.

CHAPTER CCLXXXIV

An Act relating to Public Libraries

SECTION 1. The libraries established under the provisions of chapter CLXXVIII of the public acts of 1893, and any free public library receiving a state appropriation, shall annually make a report to the Connecticut public library committee.

SEC. 2. The Connecticut public library committee is authorized to expend annually for any such library a sum not to exceed the amount annually appropriated and expended by the town, or in the case of a town whose grand list does not exceed six hundred thousand dollars, the amount annually appropriated and expended from any source, for the increase of said library, and not to exceed one hundred dollars, the said sum to be expended for books selected by said committee.

CHAPTER CCCIV

An Act concerning the Employment of Teachers

SECTION 1. The school committees in towns in which the school districts are consolidated shall examine, employ, and dismiss the teachers for the schools of such towns.

SEC. 2. This act shall take effect from its passage.

CHAPTER CCCXLIII

An Act concerning the Qualifications of Voters in Town Meetings

Section two of Chapter CCLXVI of the public acts of 1893 is hereby amended to read as follows: Any woman who is entitled to vote under the first section of this act may be registered by the town clerk as a qualified voter in town or school district meetings, by making application to him for that purpose at least five days before such meeting. It shall be the duty of the town clerk in each town to keep a registry list of the women entitled to vote in town or school district meetings under the provisions of this act, and to register the names of any women who may apply for registration for that purpose; *provided*, that after being examined by him under oath they shall satisfy him that they have the qualifications required by this act.

Special Laws relating to schools passed in 1895.

Incorporating the Stratford Library Association

SECTION 1. Joel S. Ives, George W. Fairchild, Henry C. Evans, Edwin F. Hall, Robert H. Russell, Frederick C. Beach, Walter Wilcoxson, Mary C. Allen, Clara E. Byington, Ellen V. Curtis, D. Winifred Todd, all of the town of Stratford, be and they hereby are created a body politic and corporate by the name of The Stratford Library Association, and they and their successors, duly elected as hereinafter provided, shall be and remain a body politic and corporate under the same name and style forever.

SEC. 2. Said association shall have a common seal and the same change or alter at pleasure; may sue and be sued, may receive by gift, devise, or bequest, any property, real or personal, under such conditions and restrictions as to its use, as may be imposed by the donor, and may purchase, hold, manage, sell, and convey such estate, real or personal, as may be necessary or convenient for establishing and maintaining a public library in the town of Stratford, and said property while so used for a public library shall be exempt from taxation.

SEC. 3. Said association shall have power by a major vote of its members, at a meeting specially called for that purpose, to fill any vacancies in its number, whether caused by death, resignation, incapacity, or removal out of the state; may choose a president, a vice-president, a secretary, a treasurer, and such other officers as it shall deem necessary or expedient; and may make such by-laws, rules, and regulations, not inconsistent with the laws of this state, as it shall deem best for the management of the property and affairs of said association, and the same alter or amend at pleasure. If at any time the number of members of the association shall be reduced below ten, the association shall elect some person or persons members thereof, so that the number of members shall at no time be less than ten.

SEC. 4. Said association shall hold a meeting annually for the choice of officers provided for in section three, and the officers so chosen shall hold their offices for one year, and until others are chosen in their stead. Vacancies in any of said offices may be filled at a special meeting called for the purpose. All elections shall be by ballot.

SEC. 5. The town of Stratford, by a majority vote of the legal voters present at a meeting duly called for the purpose, may fix, by a by-law, the amount which shall be appropriated and paid annually thereafter for the maintenance and increase of the library of said association, which library, during the whole of the time such payments are made, shall be open to the use of the inhabitants of said town without charge. If said town shall make an annual appropriation for this purpose, then the town may, at said meeting, elect three persons who shall be *ex officio* members of the association. Said persons shall serve without pay for one, two, and three years, respectively, and the town may, at each annual meeting thereafter, elect one person for three years to fill the recurring vacancies.

Authorizing the Town of North Haven to Appropriate Money for the Bradley Library Association

The town of North Haven be and it is hereby authorized and empowered to appropriate, annually, a sum not exceeding five hundred dollars, to The Bradley Library Association of said town, so long as the use of the library and reading-room of said association remains free to all of the inhabitants of said town.

Incorporating the Public Library Association of Cheshire

SECTION 1. That James Stoddard, James P. Hoyt, John R. Paddock, M. W. Chamberlain, Fred A. Ives, Mary E. Baldwin, Mary A. Dickerman, Lillian N. Stoddard, Mary B. Moss, J. D. Walter, Timothy L. Guilford, E. R. Brown, and all others who, at the date of this act, are members of the voluntary association known as the Public Library Association of Cheshire, Connecticut, and such other persons as may hereafter be associated with them, together with their successors, be and they are hereby constituted and made a body politic and corporate by the name of the Public Library Association of Cheshire, and by that name shall have perpetual succession, with power to appoint such officers and adopt such constitution, rules, and regulations as may seem best calculated to carry out the objects for which said corporation is created, and to alter and repeal the same at pleasure.

SEC. 2. The said corporation may sue and be sued, defend and be defended, in all courts and places whatsoever; may have a common seal and alter the same at pleasure; may receive, hold, purchase, and dispose of real and personal property; and shall be capable in law of accepting, receiving, and managing any legacies or other gifts, transfers, or bequests of money or other property which may be made for the purpose of establishing or maintaining a public library in the said town of Cheshire.

SEC. 3. The purpose for which the said corporation is created is to establish and maintain a public library : and, in its discretion, to maintain a reading-room, and promote instruction in literature, science, and art for the benefit of the inhabitants and especially the children of the public schools of said town of Cheshire.

SEC. 4. The town of Cheshire is hereby authorized by a vote of its legal voters, in a meeting duly warned for that purpose, to appropriate and pay the sum of three hundred dollars annually to the treasurer of said corporation for the term of five years for the purpose of maintaining said library ; and if said town passes such a vote and appropriates such a sum of money then said vote is validated, and shall be binding and conclusive upon said town.

Incorporating The Madison Library Association

SECTION 1. That James A. Gallup, J. Myron Hull, William S. Hull, Wilson B. Coe, Frederick L. Coe, William T. Brown, Frank C. Dowd, James R. Meigs, N. T. Bushnell, C. Gertrude Nash, Emily R. Wilcox, and such persons as they shall associate with them, and their successors, be and they are hereby created a corporation by the name of The Madison Library Association, for the purpose of establishing, maintaining, and conducting a library in the town of Madison.

SEC. 2. Said corporation shall be located at said Madison, and may hold property to an amount not execeding fifteen thousand dollars in value ; and its first meeting for organization may be called by any two of the corporators, upon notice served upon each of the corporators personally, or a written or printed copy thereof left at their usual places of abode five days before the day of meeting.

Providing for Printing the Report of the Connecticut Public Library Committee

That the Comptroller is hereby authorized and directed to print four thousand additional copies of the biennial report of the Connecticut Public Library Committee, for the years 1893 and 1894.

Extending the Time for Organization of the Aldrich Free Public Library Association

That the time for organization of The Aldrich Free Public Library Association of Plainfield be extended two years.

THE STATE MAP OF CONNECTICUT AS AN AID TO THE STUDY OF GEOGRAPHY IN GRAMMAR AND HIGH SCHOOLS

By William Morris Davis

Professor of Physical Geography in Harvard University

The State Topographical Map of Connecticut is published in thirty-three sheets on a scale of (about) an inch to a mile, or $\frac{1}{62500}$ of nature. It is constructed from original surveys made in recent years by the topographers of the United States Geological Survey (except the coastal border, which is taken from earlier work by the United States Coast and Geodetic Survey), at the joint expense of the Geological Survey and the State.

Thirteen of the thirty-three sheets overlap into the adjoining states. The map is to be had of the State Librarian, Hartford. Single sheets (for example, including the locality of a school) cost fifteen cents; the whole set, in atlas form, $4.00. This price does not include charges for forwarding.

Three other states have published similar maps. Massachusetts, in fifty-four sheets, to be obtained of the Topographical Survey Commission, 11 Mt. Vernon street, Boston, Mass.; cost, $6.00 and express charges. The northern row of Connecticut sheets are duplicated in the Massachusetts atlas.

Rhode Island; twelve sheets, to be obtained of C. A. Pabodie & Son, 335 Westminster street, Providence, R. I.; cost, $1.25 in separate sheets, $3.00 bound; express charges extra.

New Jersey; twenty large sheets (including a general map of the state, a relief map indicating altitudes by shading, and a geological map), to be obtained of State Geological Survey, New Brunswick, N. J.; 25 cents per sheet, or $5.00 for the set; express charges extra.

The maps of New Jersey and Rhode Island have been distributed to all their public schools and libraries at the expense of the respective states.

The plan on which the map sheets are prepared is uniform with that adopted for the map of the whole country, now in preparation by the Geological Survey;

except that the scale in certain western states and territories is less than an inch to a mile.*

All the waters are in blue, the altitudes in brown, and the artificial features (cities, villages, roads, boundaries, names, etc.) in black.

Altitudes are indicated by contour lines, which may be explained as follows: — Imagine a level line at a height of two hundred feet on the slopes of the Housatonic valley; it would turn aside into every lateral valley and advance around all the projecting hills. Such a line is called a "contour line," and its irregular path is determined by the topographical surveyor and drawn upon his map. Similarly, lines are drawn at altitudes of every even twenty feet above sea level; their height in feet being indicated by numbers at convenient points. Where the hillsides are steep, the successive contour lines are close together on the map, giving the appearance of a brown shading; where the surface is nearly level, successive lines are far apart, and here much of the map is left white. Thus the form and the dimensions of the hills and valleys are clearly portrayed.

Objects of Geographical Study. The systematic use of the State Topographical Map in schools would greatly promote the chief end of all geographical study; namely, a clear perception of the fundamental facts of earth-form in their relation to the occupation of the earth by man.

There is no occupation in which geographical surroundings do not enter as controls, either direct or indirect. The farmer is continually held in close touch with the local surface features. The railroad manager has continually to deal with the problem of transporting products from one district, where they are supplied, to another, where they are consumed; and the successful working of his road depends largely on its cost of construction and operation,— both of these in turn depending on the form of the region that it traverses, and on its location with respect to centers of population. The merchant deals in the products of the earth, and their cost depends on such factors as distance of source, ease of supply, demand in relation to domestic needs, and so on. The legislator is chiefly concerned with matters of trade and commerce, and all commerce is in the hands of geographical controls.

The geographer has to investigate the nature of geographical facts and of the controls that they exert on human conditions. The teacher and student of geography should turn a larger share of their attention from mere matters of location to the more important and interesting questions of the reasons for location, as determined by various classes of geographical controls, such as the forms of land and water, the relative positions of different forms, the products of the earth, which in turn are determined by soils, climate, etc., and the available sources of power, such as coal, waterfalls, and wind, which in turn influence manufactures, trade, and commerce. *This pamphlet is chiefly concerned with the manner in which the first two classes of influences may be brought more clearly to the understanding of young scholars by the aid of the State Map.*

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* An account of a number of these and other official maps, especially adapted for illustrations in teaching, may be found in a small book entitled "Governmental Maps for Use in Schools," published by Henry Holt & Co., New York, 1894; price, 35 cents.

In the competition that every one must enter in order to gain a livelihood in an active community like ours, it is the duty of the state and the privilege of its teachers to see that all the children of the state shall be equipped as well as possible for their life work; and in this equipment, a clear understanding of the manner in which our mode of living is related to the earth on which we live will be found of great practical importance.

Observational Geography. The fundamental facts of earth-form are learned in several ways: — by direct observation in the home district, by the study of pictures and maps, and by the study of verbal descriptions. Much use should be made of the home district, especially in village schools, as it supplies the only examples of actual geographical facts accessible in their natural condition to the young scholar. A well-cultivated habit of observation early acquired at home leads to observant habits when abroad in mature years. Inattention to home surroundings may be followed by geographical blindness all through life.

While home observation can be profitably carried on without a map, it is greatly aided by a good map on which the features of the district surrounding the school are shown on a large scale and with reasonable accuracy; for such a map excites an interest in local exploration, and in searching for the actual facts which it graphically represents. It is seldom that such exploration can be carried on as class work in large cities, although the numerous steam and electric railroads of Connecticut promise to be of much service in this direction; but in smaller communities exploration may be accomplished without serious difficulty, and it should be systematically encouraged. Field study is of course best undertaken in the open seasons. It may be carried on by classes, by smaller parties, or by individual scholars. Uniform accomplishment by all members of a class should not be demanded or expected. Tracings from the map may be used when it is not advisable to carry the local sheet into the field.

The following suggestions are offered in the hope of promoting the use of the home map as an aid in the study of local geography.

Linear and locative work. Encourage excursions over roads indicated on the map, to definite objective points; especially to hill-tops, from which general views may be had.

Brief notes should be taken of geographical details on the way out and back, returning by a different route when possible. Direction, distance, and height should be determined by observation as well as by use of the map. Sketch maps of the route, and of the field observed, may be occasionally prepared; but this kind of work should be given small weight. The scholars should be taught to be map-users, rather than map-makers.

From the best points of view, observe various objects, such as hills, valleys, streams, villages, roads, etc.; describe them in simple language; identify them on the map by means of direction, distance, form, etc.; learn their names, as far as possible. Knowledge of the home district may thus be much extended, and good practice will be gained in the use and reading of maps. This will be serviceable whenever other maps are used. Excellent practice in narrative and descriptive composition may be based on these excursions and observations.

Areal work. Observe the different kinds of form and surface that are to be found in the home district. Use the map as a guide in this kind of exploration. Locate each kind of form and surface on the map, after it has been actually observed. Define its area and boundaries with sufficient accuracy, and measure its dimensions. Practice estimating distances and heights out-doors, and test the estimates by the map. The following list of geographical features will suggest the kind of work here intended; a number of these features being within reach of every school in the state.

Mountains. Bear mountain, in the northwest corner of the state, is the highest summit in Connecticut. It is one of the southern members of the Taconic range, which extends northward into Massachusetts, and is further continued in the Green mountains of Vermont.

Uplands; extended rolling surfaces, at hilltop height;* for example, around the village of Ellsworth, in the town of Sharon, at a height of 1,300 feet; about Torringford, in Torrington, 1,100 feet; around Pomfret, 600 feet. The uplands descend gradually to a moderate elevation near the coast (see Lowlands). These uplands correspond with those of central and western Massachusetts, and with the highlands of southeastern New York and northern New Jersey. On account of the numerous valleys by which the uplands are interrupted, the higher portions of the state may be, as a whole, called a dissected upland. The highlands of Scotland and Norway are of a similar nature, but higher, more rugged, and more deeply dissected.

Ridges. Talcott mountain, west of Hartford; West Rock ridge and Totoket mountain, northwest and northeast of New Haven. These long, narrow ridges,* with comparatively even crest lines and rapid descent to lower ground on either side, are similar in form to the Alleghany ridges of Pennsylvania and Virginia.

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*A descriptive account of the upland of Connecticut, with physiographic explanation of its origin, is given in an essay by the author on "The Physical Geography of Southern New England." American Book Co., New York, 1895. Price, 20 cents.

Hills. The larger hills are for the most part isolated portions of the uplands; as Mount Horr, north of Canton, Nickerson hill in Lyme, and others in great number.

Valleys, in varying dimensions of depth, length, and breadth. They are shallow where the upland is low, near the coast, as in the lower part of the Housatonic valley, near the Sound; but deep in the interior, where the upland is higher, as in the upper Housatonic valley, below Falls Village. They are narrow where the resistant rocks of the uplands have delayed their widening, as in the Connecticut valley below Middletown; but broad where weaker rocks have allowed a comparatively rapid widening, as in the Connecticut valley, above Middletown (see Lowlands, below). These contrasts of depth and breadth serve to illustrate many similar examples elsewhere. Thus the canyon of the Colorado is deep because it has been cut in a lofty plateau; the rivers of Florida cannot excavate valleys, because the land there is close to sea level. The broad valley of the Hudson, above Newburgh, and its narrow gorge through the Highlands below Newburgh, are of the same nature as the broad and narrow portions of the Connecticut valley.

Lowlands; extensive surfaces of small relief at a moderate elevation. These are of two classes in Connecticut. The uplands gradually descend to lowlands of the first class near the Sound; no definite division can be drawn between these two areas; one merges into the other. The second class of lowlands includes those broad valley floors by which the uplands are more or less interrupted, the chief example of this kind being the broad valley-lowland, that extends northward across the middle of the state, separating the eastern and western uplands. The margin of this extensive lowland is generally marked by the strong slopes of the upland, as south of Bristol. The lowland is diversified by ridges (see above) and by minor forms, such as drumlins, gravel hills, plains, and terraces (see below).

Drumlins;† arching oval hills of glacial drift, half a mile to a mile long, one or two hundred feet high, irregularly scattered over uplands and lowlands. Unlike the rocky surface of the uplands and slopes, drumlins are generally cleared and cultivated. They are plentiful on the upland about Pomfret; and on the valley-lowland about Durham and south of New Britain. Similar hills occur in Massachusetts, especially about Spencer and Brookfield, and in Wisconsin, about Madison; also on the lowlands of Scotland, and on the central plain of Ireland.

Gravel hills; the product of water running from the melting ice in the later stages of the glacial period.‡ These occur chiefly in valleys and on the lowlands; as near Terryville, west of Bristol; or south of Berlin Junction. Although of small extent, these hills are similar to the gravel hills or moraines of Long Island and Cape Cod, and to the hills of the lake district of the North German plain.

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* A general account of some of these ridges, and of their association with ancient volcanic action, may be found in an article by the author, on "The Lost Volcanoes of Connecticut," in the Popular Science Monthly for December, 1891.

† See the Physical Geography of Southern New England, cited above.

‡ A somewhat fuller account of these hills and of other geographical products of glacial action is given in an essay by the author, entitled "Geographical Illustrations" (an account of certain features of southern New England), to be had of the Publication Agent, Harvard University, Cambridge, Mass.; price ten cents.

Plains; flat surfaces of faint relief, well represented in those parts of the central valley-lowland east and west of Windsor. By imagining these plains to extend indefinitely, thus leaving the hills out of sight, they may be used to give good illustration of the extensive prairies and plains of the Mississippi basin.

Terraces; flat benches of gravel or sand, bordering valley floors; formed where streams entrench themselves beneath their ancient flood plains, as along the Farmington and the Scantic rivers.

Flood plains; broad, meadow-like plains, formed in valleys at the level of stream floods; well shown at various points along the rivers and brooks of the state; notably along the Connecticut above Middletown. The flood plain of the Mississippi is of this character, but of much greater extent. The plains above mentioned, east and west of Windsor, are ancient flood plains of the Connecticut, formed when the land had a less slope to the sea than at present.

Marshes and meadows; representing ancient lakes of slight depth, now filled and drained by stream action, aided by plant growth; as in the marshes of Beaver brook, east of Danbury.

Tidal marshes; representing ancient estuaries or bays of slight depth, now filled by waste from the land, aided by plant growth; as the marshes of the lower Quinnipiac, at the head of New Haven harbor. Similar marshes of great extent occur on the New Jersey coast, and further south.

Forms of Water. Brooks and rivers, ponds and lakes, rapids and falls, occur in great variety of form and dimensions. In connection with *streams*, study should be made of drainage areas and slopes; of the limiting divides, whether well-defined on hills, or ill-defined on plains. *Rapids and falls* are often associated with terraces, indicating that ledges on which the rapids occur have been found by the stream as it entrenched its present course beneath its ancient flood plain. *Ponds and lakes* often stand up-stream from extensive gravel hills or plains of glacial origin, which constitute obstructions or dams in the valley floors; all the natural ponds and lakes in the state being thus the product of glacial action.

Features of the Coast. Headlands, projecting portions of the coast lowland, as Sachems Head. *Islands*, outlying portions of the coast lowland, as off Norwalk *Beaches*, formed of gravel and sand by wave action, generally presenting smooth curves, concave seawards; as Hammonasset beach, near Clinton. *Estuaries*, narrow tidal arms of the sea, like that of the Thames below Norwich. This beautiful estuary may be taken as a type of those of the coast of Maine; and by imagining a stronger relief in the enclosing uplands, it may be justly compared to the fiords of Norway and British Columbia. The lower course of the Connecticut may also be treated as an estuary. *Bays*, broader arms of the sea, well-illustrated on small scale in New Haven harbor.

Physiographic Relations. Even in the earliest stage of observational work, suggestion should be made of the physiographic processes by which the existing geographical forms are explained. At first, these suggestions should be very simple; but they may be carried to a good degree of advance during the grammar school course. The following paragraphs indicate the character of this part of the work.

When observing ridges, note how definitely their crest lines serve to divide the rainfall over the adjoining drainage areas. Note how large a share of rainfall is discharged from steep slopes by surface streams, and how large a share sinks into the ground on sandy plains. All slopes should be regarded as surfaces down which the waste of the land creeps and washes to the streams. In valleys, much accumulated waste is to be seen, waiting for the streams to carry it to the sea; a beginning of this transportation is made where ancient flood plains are trenched and terraced. Streams should always be considered as bearing a larger or smaller share of land waste towards the sea. Flood plains consist of land waste, temporarily laid down by the streams, but eventually to be taken up again and carried along further, ultimately reaching the sea. Ponds and lakes are so many filters that allow the waste that is washed into them to settle, and discharge the water purified; hence, their value as reservoirs for villages and cities. Deltas may often be seen growing where streams enter lakes; many meadows represent the completed stage of the extinction of shallow lakes by delta and bottom filling.

Furthermore, the valleys are so many trenches, cut down by the action of the streams, and widened by the wasting of the slopes.* The valleys were certainly deeper before the gravels and sands that they now contain were deposited in them. The hills are seen to be merely portions of the upland, isolated by the growth of the valleys.

All the estuaries and bays along the coast are simply valleys that have been submerged or "drowned" by a general depression of the land; their breadth depends on the form that the valleys had gained before the time of depression; their depth depends chiefly on the amount of depression, although somewhat affected by the action of tides and currents in transporting waste along the bottom after depression. Headlands are ridge-like portions of the coast lowland, projecting between drowned valleys on either side. Islands are hilltops, isolated by drowning the lower ground around them. The time since the depression of the region must be short compared to that since the dissection of the uplands and the excavation of the valleys was begun; for since the depression, there has not been enough waste carried down by the streams to form extensive deltas in the estuaries.

Ponds and lakes, as well as drumlins and gravel hills, are all to be regarded as geographical effects of the invasion of New England during the glacial period by an ice sheet similar to that which now covers Greenland.

Relation of the Local Sheet to the State Map. When local observation is well begun, search should be made on the state map for features similar to those locally observed, but occurring in other parts of the state. Comparisons should then be instituted between the local and the more distant examples; this exercise again affording excellent practice in English composition. It is in this division of the work that the state map as a whole most usefully supplements the home sheet. The acquaintance thus made with the geographical features of the state will be found most useful in giving just ideas concerning the geographical features of many parts of the world.

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* There are no valleys in Connecticut that have been formed by the bending of the earth's crust, such as the narrow troughs that lie between the folded ridges of the Jura mountains in Switzerland or such as the broad valley of California, between the Sierra Nevada and the Coast range.

The nature of local geographical facts having become clear from local observation, and the representation of these features on the home sheet having become familiar by comparing the facts with the maps, the scholars are now prepared to reverse the process and infer the character of distant geographical facts, that lie beyond direct observation, by means of their representation on various non-local sheets. Accurate ideas concerning the geography of the state are gained in this way; the study of geography becomes essentially scientific in character. The information gained is useful; the training gained is educative. It is manifest that familiarity with the features of the home district by actual observation is the essential foundation for work of this kind.

Relation of Surface Features to Occupation by Man. From the time of first exploration of the state, its people have been constantly influenced in their selection of places for settlement, in their subsequent purchases of land from one another, and in their occupations, by the geographical features that they observed about them. There has been a reason, a cause, for every item of boundary, location, or industry. During the progress of the observational, physiographic, and comparative studies, above-outlined, the scholars should be led to perceive the character of the various influences by which settlement, occupations, etc., have been determined.

Nearly the whole surface of the state was originally wooded. Determine what parts of the home district are now wooded, now cleared (cultivated, or otherwise used); what parts, once cleared, are now overgrown. How do form, height, soil (gravel, sand, clay, peat; wet, dry; deep, thin), and drainage affect the distribution of cleared and wooded parts. Let the teacher give examples of similar controls elsewhere.

Roads and railroads; examine the manner in which the form of the land affects their location. Consider the condition of communities to which access is gained by level or by hilly roads; by roads alone or by roads and railroads.

Houses, scattered or grouped in villages and cities. Study the relation of their situation to form of ground, height, slope, drainage, soil.

Consider the relation of their location to their industries, which in turn depend more or less directly on geographical controls.

After local observation and study of these topics, more extended study should be made by means of the map, as far as desired.

Apportionment of Map-work to the different years of the School course. It is manifest that the home field, the comparison of its features with those in other parts of the state, and the relation of all to human conditions, may be studied long without exhaustion. It is believed that careful attention to this fundamental part of geographical teaching will lead to a better understanding on the part of the scholar of many other parts of the world than his native state. The following distribution of the work through the school course is recommended:

Local observation should begin with the earliest nature study. Geographical features in the immediate neighborhood of the school should be pointed out, described in the simplest terms, and named. The most elementary physiographic processes connected with rainfall and surface washing may be pointed out at the same time. No original observation or description should be required in this stage. It is enough that young scholars make an imitative beginning in talking geography as they do in talking English.

Identification of simple features, such as hills, streams, roads, in their representation on the local map may be soon introduced. This corresponds to the linear and locative work above. It may be well to precede or to accompany this stage of the work with a few very simple exercises in drawing small outline maps from observation, but these exercises should never be made laborious. Time can be better spent in using the good map of the whole school district than in making an awkward and imperfect map of a small area.

Inquiry as to what lies beyond a hill or ridge may soon be excited by the use of the map, and thus the spirit of exploration makes its appearance. It should be cultivated as soon as the scholars are able to make field excursions of a mile or more. These excursions should always follow the lead of a route selected from the map, and they should always be used to give exercise in direction, distance, and height, as well as in form. Opportunity for this part of the work will vary greatly with the location of the school; but even in large cities, the introduction of electric railways is now making class excursions a comparatively easy matter. Teachers are urged to attempt work of this kind as far as possible. The larger and older scholars may often undertake short excursions alone or in parties under their own guidance. Some work of this character, but of advancing grade, as outlined above, may be continued all through the grammar school, and, with natural extension into mineralogy, physiography, botany, and zoölogy, through the high school course also.

The beginnings of observation, identification, and inquiry may be made in the first year of nature study. All these phases of study should be continued in later years, with advance in quality and detail, and with addition of new phases. When the study of geography is formally taken up with a text-book, especial care should be taken to illustrate the topics of the text by local features, as far as possible. By a little consideration, the observations of previous years may be directed so as to provide an acquaintance with a good number of those classes of facts whose description is encountered in the early pages of the text book. Exercises in forms and surfaces (areal work), and in physiographic and industrial relations should accompany the progress through the text.

While inquiry as to the meaning and origin of geographical features should be encouraged and satisfied at all stages of study, systematic and scientific instruction in this physiographic chapter of geography is best left to the high school. It is proposed to issue a second pamphlet on this phase of the subject, in which the hints on physiographic relations, given above, shall be expanded.

Preparation of the Teacher. The best preparation for the teacher is a grammar school education according to the above plan, extended by a course on physiography in the high school, and amplified by field and map study, with some geology if possible, in the normal school. Teachers who are now professionally at work without systematic preparation of this kind, and who wish to introduce observational and mapwork in their classes in geography will do well to begin by familiarizing themselves with their school district by means of excursions, map in hand. All the various classes of work above outlined should be made familiar by repeated experience. The appropriate sheets of the state map form a most instructive companion on a railway journey. The relation of parts to the whole may thus be easily apprehended.

Excursions for practice may be made alone ; but if a teacher is well trained in general geography, and if she has established relations of harmony, confidence, and interest with her scholars, she cannot do better than by inviting some of the older scholars to go out with her, so that she and they may discover together the character of this "new kind of map study." Frank confession of the novelty of the work and of lack of experience in it will not in the least lessen the esteem of the scholars for their teacher, provided the esteem is well founded in the first place.

Lack of experience in the use of the state map in field teaching is, for the present, a necessary result of the recent completion of the map. Three, four, or five years hence, a similar lack of experience will be interpreted, by those who understand the advances in the teaching of geography now in progress, as the result of the neglect of the opportunities for self-improvement that every teacher is in duty bound to use to the utmost. Fifteen or twenty years hence, it will be a reproach to the school in which the younger teachers of that time began their education, if they do not bring from it an acquaintance with home geography and the geography of the state, such as the proper use of the state map in the grammar schools will surely develop.

METEOROLOGICAL OBSERVATIONS IN SCHOOLS.

Prepared for the Connecticut State Board of Education by ROBERT DE C. WARD,
Instructor in Meteorology in Harvard University.

The time has come when meteorology should be systematically taught in our schools. It is a subject of the greatest practical interest and importance. It lends itself very readily to teaching. It trains those who study it in habits of scientific thought and investigation. Already in many of our grammar and high schools some meteorological instruction is given, and the keeping of meteorological records by scholars is every year becoming more general. As yet, however, there is no *system* in all this work, and, in consequence, much that is being done is wasted effort, without definite result. The present circular is designed to indicate some of the lines along which the elementary study of meteorology should proceed in order to be most thorough and most useful.

The children themselves, even in the earliest primary school years, take the first step towards an understanding of our ordinary weather changes. They unconsciously notice whether a day is fair or rainy, hot or cold, a pleasant one on which to be out, or one on which they would rather stay indoors. These facts are temporarily impressed upon their minds when they start for school ; when recess time comes ; and when they go home. If it is raining or snowing, they need umbrellas and rubbers ; if it is cold, they need overcoats ; if it is windy, they find it hard to walk ; if it is icy, they can enjoy themselves sliding on the ice ; if there is soft snow on the ground they can make snowballs ; if it is very hot, they prefer to walk in the shade. We are all so directly affected by the weather conditions prevailing at any moment that even the youngest school children are forced, unconsciously, to be sure, to take some notice of these conditions. Here lies the first work of the teacher who wishes to teach her scholars something rational as to the simpler facts of meteorology.

The first step is to make the children intelligent observers of weather changes and conditions, instead of leaving them merely blind, unconscious subjects, as they otherwise are. This introductory work on the part of the teacher is simple and, if entered upon with enthusiasm, becomes very helpful to both teacher and scholars. It may be briefly sketched as follows: When the children come to school on some snowy winter day, with a violent northeast wind, chilling and damp, attention may be called to the need of overshoes and overcoats; to the fact that the snow should be shaken off the clothing in order to prevent the latter from becoming wet; to the piling up of the snow in deep drifts at certain places near the school or in the town, while in other places the ground is left bare; to the ease with which snowballs may be made, and to other facts which will very readily suggest themselves. A day or two after such a storm, when the sun is shining brightly in a cloudless sky; when there is no wind and the air is dry, cold, and crisp, the contrasts between these two weather types should be brought out. Instead of snow we now have sunshine; instead of a damp, chilling northeaster we now have a calm and the air is dry; snowballs cannot easily be made in the early morning because the snow is frozen hard and is too dry, but towards noon, if the temperature rises high enough, there may be thawing on the tops or sides of the snow-drifts, and there the snow becomes soft enough for snow-balling. Another weather type, often noted during our New England winter and strongly contrasted with both of the preceding conditions, is that which brings us a warm, damp, southerly wind, frequently accompanied by heavy rains. As these damp winds blow over snow-covered surfaces they become foggy and the ground is said to "smoke"; the heavy rain rapidly melts the snow; slush and mud make bad walking; rivers and brooks rise rapidly, perhaps overflowing their banks; low-lying places become filled with standing water. These and other features should all be brought out by the teacher, not by telling the children of them directly, but by judicious questioning, and they should be contrasted with the conditions which may immediately follow, when the storm has cleared off, and when the low temperatures brought by a "cold wave," with its dry northwest wind, have resulted in freezing lakes, rivers, and brooks; when skating and sliding may be indulged in, and when hot fires are a necessity.

Early summer weather conditions, with their accompanying warm spells, thunder storms, and sea breezes, furnish another long list of typical changes that should be just as carefully noticed and described as the more striking winter characteristics, — in fact, these examples might be extended indefinitely. Enough has, however, been said to indicate the lines along which this preliminary training of the children should proceed. The central idea should be to train the scholars in intelligent weather observation, so that they may come to appreciate what our typical weather changes are; that they may recognize the types as they recur over and over again, and may see how each example differs from, or accords with, those that have preceded it. In this way, by spending only a few minutes a day on the subject, the teacher may soon bring her children to the point of being intelligent, rational observers, and by the end of the primary school years they should have in mind, not only our typical weather changes, but the larger facts of seasonal change as well.

This simple method of getting an appreciation of our seasonal and daily weather types is a very important step towards a rational understanding of the larger facts of meteorology. It should, in all cases, precede the next step,—observations with instruments.

In the instrumental work, which may usually be begun in the early years of the grammar school course, it is not well to attempt anything more than records of temperature, wind direction and velocity, and rain and snowfall. Current observations without the use of instruments should, however, be made in addition, such observations including the state of the sky (clear, fair, cloudy); the kind of precipitation (rain or snow), etc., together with any other notes as to peculiar features that may happen to be noticed day by day.

Temperatures are of course registered by thermometers. For school use a good mercurial thermometer, costing $2 or $3, should, if possible, be purchased.*

Ordinary thermometers, costing 50 cents or $1, are inaccurate, and records from them are of little value. The thermometer ought really to be hung away from any buildings, in the shade, about four feet above a grass-covered surface, but as this is in most cases impossible or impracticable, it does sufficiently well for all general purposes if the instrument is fastened outside a north window, at least one foot away from it, and so arranged that it can be read from inside, without opening the window. If possible, a window should be selected which is seldom opened.

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*A mounted mercurial thermometer, of the Weather Bureau pattern, can be purchased from Julien P. Friez, 107 East German Street, Baltimore, Md., for $3.00.

Wind directions may be taken from the indications of a neighboring vane, but care should be taken to see that the vane is in good working order. Wind velocities may be roughly estimated as calm ; light ; moderate ; strong ; gale.

Rain may be measured by means of an ordinary lard pail, or even a tomato can with the top cut off evenly and sharply. This should be set in an open space, away from trees and buildings, and ought to be so arranged that it can be fastened to a short stake to prevent its blowing over. The depth of water in the can may be measured, roughly, with a foot rule, divided into inches, quarters, and eighths. In the case of snowfall, which is difficult to measure satisfactorily, the best way is to select some flat space where the snow has not drifted and then to press the inverted can down on the snow, thus cutting out a circular section of snow. By means of a thin board, or a shovel pushed under the can, the snow inside the can is retained, and the can with its contents may be taken indoors. There the snow should be melted and the depth of water it produces measured.

These are, of course, very simple and very crude observations, but they are all that can be attempted in most schools, and are certainly all that can well be attempted at the start in any case. If the older scholars are especially interested, the instruments may easily be added to. Maximum and minimum, and wet and dry bulb thermometers ; a standard rain-gauge, a barometer, etc., may be secured, and much fuller records kept, but these additional instruments are somewhat expensive and their care and observation require much time.

Now, when should these simple records be made, and how should they be preserved ? The answers to these questions ought to be left to the scholars themselves to work out. They will probably begin by thinking one observation a day quite sufficient, and they will perhaps prefer to take this in the morning, before school opens. It is a good plan to have a different scholar assigned to the duty of taking the observations every day, the better scholars being given this piece of work as a sort of reward, and it is also advisable to have the daily weather record written upon the blackboard so that all can see it. The teacher should lead the scholars to see that only one observation of the temperature a day does not serve to give a fair average for that day. The temperature usually rises towards noon, and a reading of the thermometer made at 8.30 or 9 A. M. is often much too low for the actual temperatures experienced in the early afternoon. In this way, by judicious questioning and suggestions, the children will soon come to see the need of several observations of the temperature, the wind direction and velocity, the state of the sky, etc., and in time it may be so arranged that an observation can be taken every hour during school days. One reading of the rain-gauge a day will, however, usually be sufficient.

At the end of each day the blackboard data should be entered in a permanent record book by some one of the scholars, and some ingenuity can be exercised in devising the best scheme for keeping this record. The record book should be carefully preserved in the schoolroom, where it may be referred to by the scholars of future years when any unusually severe storm, or a spell of excessively hot or dry weather, or a remarkable " cold wave " occurs, in order that comparison with past occurrences of a similar kind may be made. The keeping of such a record book teaches the children neatness and punctuality ; the adding up of the monthly and weekly temperatures and rainfall trains them in simple arithmetical work ; the taking of the observations gives them a feeling of responsibility which makes them accurate and attentive. Indeed, experience shows that in most cases where children have had such training as this simple meteorological work gives them they become neater, more careful and more punctual in their studies.

Just as the children have, in their earlier, non-instrumental observations, become familiar with the typical weather changes, so they now have their eyes opened to the discovery of other new facts unknown before. Among these discoveries, which the brighter children will soon make, are the following : The temperature noted during the day, especially during the summer half year, is prevailingly higher about noon, and in the early afternoon, than in the morning or at night. This, of course, is seen to depend on the sun, and thus the marked control of the sun over our temperature distribution is brought out. In winter this simple diurnal temperature distribution is very often entirely obliterated by the conditions brought about by the passage of storms, which come at irregular intervals and whose warm and cold winds control our winter temperatures to a great extent. This winter storm control of our weather and temperature, as distinguished from the solar control so characteristic of summer, is one of the marked features of our climate. The relation of certain directions of the wind to certain kinds of weather conditions is soon noted, and in this way a set of simple rules for local weather prediction may be framed. The increase of wind velocity towards noon in summer, with calms in the early morning and at night, cannot fail to be detected by the brighter children.

The diurnal growth of clouds, too, with a maximum cloudiness in the early afternoon and clear sky at night, often noted in summer, must soon appear as a characteristic feature of our spring and summer weather conditions. On clear, calm winter days, temperature readings made in the morning and evening from thermometers at some distance above the ground, as out of a second or third-story window, or exposed on hills or rising ground, will be found to be higher than the readings made where the thermometers are near the ground, or in valley bottoms. The occurrence of rain and snow at *any* time of day in winter, while in summer our precipitation comes chiefly in the afternoon and evening, from thunder storms, will soon be noted, both on examining the record, and as a result of individual observation.

These, and very many other facts, may and will be discovered by children who are taught along the lines which have here been indicated. Such work cannot fail to attract both teacher and scholars. It adds to the interest of life. It gives admirable training in simple scientific investigation and habits of thought. It results in making the children more careful, more punctual, and neater in their other work. And it lays a foundation on which, in after years, a more advanced study of meteorology may be built up.

Systematic work on the practical use of the daily weather maps, as outlined in the Report of the Committee of Ten on Secondary School Studies, should follow the simpler elementary exercises suggested in this pamphlet, and it is hoped to indicate, in a later publication, the lines along which this more advanced study should proceed.

ROBERT DE C. WARD.

Harvard University, Cambridge, Mass., March 14, 1896.

THE TEACHING OF ENGLISH IN HIGH SCHOOLS.

By SAMUEL THURBER, Ph.D.
Girls' High School, Boston.

[Read before the high school section of the Conn. State Teachers' Association, New Haven, October 16, 1896. Published by vote of the section.]

A large portion of our lives is naturally and rightly subject to routine, or habit. We cannot prevent actions that have to be constantly repeated from becoming mechanical, that is, to a greater or less extent withdrawn from conscious volition and given over to physiological functions analogous to those which keep our hearts beating. Consider how painful is indecision, what demands upon our vitality are made by perpetually recurring cases in which we must decide what to do. But the automaton within us acts without making any draft upon our nervous force ; and this automaton may be trained to take upon itself an infinite portion of our load of care, if only we are wise and resolute and know what concerns to trust it with.

But all the philosophers and moralists are ready with their lectures on habit ; and you know I have undertaken to say a word on the teaching of English. The connection between the formation of habit and the processes of teaching, whatever the subject may be, is very close ; but I consider the school English to be so intimately and intricately involved with the dangers of schoolroom use-and-wont as to call for special examination of existing tendencies and for warning against growing customs that threaten to become tyrannical. I have used both the words *routine* and *habit*, but by no means are these two expressions synonymous ; or if they have kindred denotations, we may say that in connotation they are far apart ; so that while we might speak of the power of habit as a potential blessing to humanity, we should certainly speak of routine as an evil, as signifying that the automaton has invaded the domain of judgment, of conscious purpose, of rational planning to accomplish clearly conceived ends.

Now I think it is to be said that of all secondary studies English is the most apt to run into mere formal repetition, and that the routine into which English tends to settle is the worst of all possible routines.

The peculiar liability of English to get into a rut may be thus explained. In English, the word, the phrase, the pronunciation, the sound, the grammar, the rhythm, the way of thinking, the moral tone,— that is, the very elements and materials of the teaching,— are all familiar. In other subjects the teacher is to the pupil as one who knows to one who does not know. But in this subject both teacher and pupil know in some fashion. No other study is full of rules requiring the learner to do precisely what he does already and cannot help doing. In mathematics, history, a foreign language, there is always a next thing to proceed to ; but English comes all at once, a sea of troubles, against which the teacher has to take arms from a curiously ill-stocked arsenal. Clear, tangible, objective points for the process of drill are not so easily found in the mother tongue as in Latin, for example, in French, in science. A French, a German, a Latin composition has in it errors, that can be criticized, counted, corrected, marked. An English composition is well or ill made as a whole ; it is pervasively strong or weak, clear or confused, a perfect picture of a young and untrained mind. Not only do we have to say that the facts of English are too close to teacher and pupil to be seen, as he who is aboard a ship sees not its graceful shape; we must even say that the facts of English *are* both teacher and pupil. One's speech is a part of what he unconsciously *is*, and can be made a part of what he consciously *has*, and can use as an instrument, only by some educative processes unlike those by which knowledge of purely objective things is acquired.

Many an English teacher finds both composition and literature vague and pathless. A mistake may here and there be corrected, a date or a criticism may be learned. But skill in composition has no handles; it cannot be seized; it is not an art depending on one mental gift or talent, to be acquired by industry, like dexterity of the hand, the eye, the ear. No effort of memory avails for anything more than remembering, and remembering is but little concerned with doing except to clog and cumber its freedom. Everyone who composes English speaks or writes from his entire nature. The words he knows and can summon at will are precisely the thoughts he has and can adjust to other thoughts. Fullest knowledge of the rules of composition does not enable you to compose. To take a course in rhetoric as a preparation for writing something that shall interest your fellow mortals is like tying yourself up in a sack as a preparation for running a race. You cannot compose from an empty mind, or from a confused mind; and if your mind is well stocked and your knowledge well digested and orderly, you can compose, beyond all peradventure, provided your life fulfils this one condition, namely, that your associations are good and stimulating,—which means, of course, that you hear your language well spoken to express worthy thoughts, and that you cultivate assiduously an intimacy with literature. If you will not read generously, if you cannot read with delight, if you persist in hearing and speaking commonplace, you cannot win power of expression, and if you think you will gain this power at one stroke, by mastering a text-book of rhetoric, you simply make the great pedagogic mistake of the day.

Let me say, once for all, that what I concede to formal rhetoric is a slight regulative agency in bringing the student to a consciousness of his liability to violate the conventions of usage. The study of rhetoric presupposes an actually existing copiousness of expression which may be pruned; whereas every teacher knows that this presupposition is wrong, and that instruction in composition is usually applied to minds that are vacant and inert.

The traditional teaching of English that still prevails in our primary and secondary schools, undertakes to plan instruction in composition by beginning with the utterance, the expression; as if this act of speech could be abstracted from the content and quality of the speaking mind, and studied as an art, whose materials are words subject to rules of grammar. This order of procedure issues nowhere in particular except in a formal arrival at the end of some manual of composition or rhetoric. I see the superintendents laying out courses, prescribing what elements of expression shall be attended to this year and that year, filling their books with exercises, with unrelated bits and driblets of English that is correct or is to be made so. These exercise books, even when made by normal school people, are a most pernicious influence in our schools. For one thing, they make teaching fatally easy, reducing it to the stalest, most mechanical routine of lesson-giving and recitation-hearing. Then these manuals, with their multifarious sentences, dissipate energy, impoverish minds, relax the power of attention, just as the inveterate habit of reading for hours together the endless all sorts of the newspapers spoils the mind for reading books, and undoes much of the work which education in literature and science is meant to accomplish. I suspect the sanity of those pedagogists who are willing to set before young eyes dozens of sentences which in regard to their thought are heterogeneous and inconsecutive, and whose sole principle of unity is that they illustrate the same rule of grammar or rhetoric. A child cannot be made to consider a sentence regardless of its meaning, its thought; and if you make him pass on at once to a wholly new sentence, expressing a thought unrelated to the other, even though you try to require him to ignore the thought and concentrate his attention upon the words, he will not and cannot, but soon becomes dazed, and conceives that mortal hatred of composition which we all know so well and struggle against so hopelessly.

When the child loses his interest, the teacher also, of course, loses his; and when the teacher loses his interest, if he lacks the power of self-criticism and does not know his own mind, or if he is incapable of taking the initiative and of introducing reforms, or again,— and this is the most likely to be the case,— if he works in a system and must consult somebody else before doing anything at all that is new, then of course he must take refuge in the anæsthesia of routine, give his work over to the automaton, keep his hours, hear his classes, and above all, maintain his discipline.

Nothing in the modern school so fosters drowsiness as a text-book so well made as to save the teacher all work of planning and adjusting; and of all text-books the text-book of exercises in English composition is the worst, for the reasons I have shown already, namely, that with its hodge-podge of examples it bewilders and distracts young minds, and that it fails to make good its professions and teach composition.

The teacher who would elicit composition from his pupils must begin where nature does; that is, with the thought: and the composition must not be for its own sake,— the expression is not for the purpose of exhibiting itself, its smartness, its accuracy, its beauty; but the purpose of the act of composing is to convey a thought from a mind that possesses it to another mind that can and will receive it. The two absolutely essential elements of an act of expression are a mind expressing and a mind impressed, or a speaker or writer on the one hand, and a hearer or reader on the other. Nowhere but in schools is the intervening link that unites these terminal elements treated as having an independent existence, dissevered from its connections, withdrawn from its functions, handled as a thing subject to analysis and correction. In biology we are often reduced to the necessity of inspecting specimens preserved in alcohol, and it is strange how we love, in English, also, to observe these pale, bloodless, dead specimens which we call exercises. Why should not the learner, in juvenile simplicity, imbibe the notion that English speech is a rare catch, for which learned men have been hunting, and that these sentences are not things to be found every day in the year or by common people like himself? Now I can appreciate a boy's collection of blown eggs, his display of stuffed birds, his book of canceled foreign stamps, but I object to a collection of dead English; it is unreasonable, unnatural, unnecessary.

Moved by these considerations, I have endeavored to reduce them to practice, and to devise ways and means to make composition spontaneous, voluntary, and pleasurable. My own ideal I saw a little while ago apparently realized in a normal school at some distance from Boston. Here a teacher told me before her class of young women that she never required, solicited, or even suggested the writing of compositions, and yet had more compositions to read than she could well manage, interesting, too, no two alike, on all the multiform themes that bubble up in restless, seething, adolescent minds.

I give you this concrete instance, actually realized in a school of just such young women as throng all our upper high school classes, that you may compare with me for a moment the method of nature with the conventional procedure called English teaching, that prevails in our secondary schools generally. This conventional procedure begins with the expression, and discusses punctuation, capitalizing, paragraphing, etc., as the matters to be attended to, and finally casts about for some topic to write on, there being meanwhile no hint of an audience, a public to be interested or instructed. On the one hand, the source of inspiration, the fullness of mind that seeks utterance, the competency to illustrate some fact of nature or of humanity, is neglected or at least treated as of secondary importance; and on the other hand, the issue and end of the utterance, the being listened to by sympathetic fellow mortals, the reward that radiates from attentive, eager faces, is equally ignored.

The process starts from nowhere and goes nowhither. The nowhere of the start is the vacant mind of the pupil, crowded by the near approach of an appointed day and by the terrors of the school discipline; the nowhither of the destination is the weary mind of the correcting teacher, worried and hurried by excess of work, or, what is surely no worse, the indignant and rebellious teacher's waste-basket. I actually know of a supervisor of schools advising teachers to throw into the waste-basket, unread, masses of pupils' compositions that were too much for their patience. Only in the duress of the schools, and even there only in the absurd coercive procedures of the classes in English, is this peculiar enormity committed. Reduced to lowest terms, it appears about thus: You, boys and girls, who have nothing to say, will please say something at once, but you will please not say it to anybody.

Now go back with me to the normal school to which I took you a few moments ago. Each of those girls wrote spontaneously; that is, because she had an idea and wished to communicate it to her teacher and classmates. Her teacher and her classmates were her public. As soon as the idea welled up in her mind, she thought of this public,—how much wiser they would be if they only had it, too, how pleased they would be to get it, how they would listen and smile and praise. The great factors of a composition,—the mental content to start with, the audience to reach,—were fully present. The minor element in the business,—the language to be used in effecting the communication,—would take care of itself. The teacher of these girls taught composition by rousing minds to activity. In fact, the entire school kept itself out of the ruts by cultivating originality. It buzzed with ideas. In the morning a time was statedly set apart in which girls who wished to communicate something orally to the entire school might do so. When the moment came,—and the girls had been watching the clock for its arrival,—they flocked to the platform, so as not to be left out and lose their chance. They had observed, they had compared, they queried, they had found something startling or impressive in a book, they had seen a curious exhibition of human nature in a child, they had found a curious animal or plant. They effervesced with zeal, and were as willing to talk in a great hall before visitors as in their own coteries.

You see, do you not, that what I insist upon as the fundamentals of composition writing are a well-furnished mind in the writer, and a friend, or many friends, to listen and to be pleased by the relation. I will spare neither of these conditions. Moreover, I would devote my energies, my time, my invention, to the securing of these conditions; for it is my belief that when these first and last essentials are achieved, the intervening link in the process, that is, the language to be used in the recital, finding itself in a nidus favorable for its development, will naturally tend to acquire copiousness and form, and will need but slightly your supervising eye, your correcting hand.

Let us look for a moment at this matter of language-training. With regard to his speech every human being is the creature of his environment, his associations. No one knows a word until he has been brought into contact with it, and no one can possibly extend his speech beyond his intelligence, his experience. Your speech mirrors your mind, and announces all your acquisitions, especially the acquisitions made in your youth, when your mind was plastic and took delight in every gain of knowledge. Whoever talks with you measures you. Your photograph may be what is called expressive, but nobody can be sure what it expresses. Your speech gives you away; it shows how you were brought up, where your associations have been, whether you have kept up a habit of reading, what sort of books you read, or whether you are a devotee of the newspapers.

Now the school may be and should be a great agency among the countless influences that contribute to the shaping of a person's speech. But the sole way in which the school can bring itself to bear upon its pupils' English is by creating for them the largest possible range of good associations. Instruction in composition and rhetoric constitutes a good association provided this instruction is stimulating and interesting, if it enlarges insight and supplies food to the spirit. It is of no use to tell an adolescent (of either sex) that he must not use language thus and so. It is of infinite use to provide for him a genuine intellectual enjoyment which he is to receive through the medium of language. From pleasant associations in school are retained the lasting impressions which contribute to the vocabulary and ally themselves with the unconscious language-sense. But understand, — it is only pleasing passages of school life that color permanently for good the learner's English. These pleasing passages of school life occur in every study; but the best opportunity for them is in the province of the English teacher, whose function properly and confessedly takes in all literature, and calls for reading aloud, for declamation, even for acting. I cannot sufficiently insist on this principle;— namely, that it is by its total moral and esthetic impressiveness that the school is to touch the habitual English speech of youth. An injunction to avoid this or that expression because it violates good usage has no moral or esthetic quality. Good usage is no open sesame to the young heart. The key that will unlock the secret chambers of the adolescent soul is English poetry rightly read. Or let me say, it is imaginative literature, prose or verse. But notice, this literature must be interpreted by an appreciative teacher. The teacher who can read with voice and manner to give to poetic passages their true color, soon instils in the young people the desire to do likewise. The whole mystery of teaching English in a high school is solved as soon as you get the boys and girls fond of reading or reciting elevated passages,— that is, as soon as you enable them to find enjoyment in poetry. To find delight in poetry is not a trait of maturity alone, or of high culture alone, it is a trait of humanity. Mothers have always sung to their babes in verse, and told them tales that were not true. Fiction, told in rhyme and rhythm, dates from prehistoric times, and is probably as old as the race. Fiction, told in rhyme and rhythm; made-up stories, chanted or sung, or recited with due regard to the pulse-beat of the verse, is the proper literature of the primary school. Little children love it, and the taste of babes and young children cannot possibly be conceived as sophisticated. Why need there come a point, as we pass up the grades of the schools, when, suddenly, this child's surrender to the witchery of rhythmic utterance gives place to the immense consciousness that all that business was childish? If those who are studying the child-nature ever find out anything certain about it, among their discoveries may possibly be a psychic law by which the young *homo*, passing from the stage of *infantia*, through *pueritia*, into *adolescentia*, has to undergo temporary eclipse or obscuration of certain faculties which were very active before this period of change set in, and will be active again when it is over. Or will some wisely-observing superintendent assure me that I am altogether wrong, and that there is in truth no eclipse of the faculty of responding to rhythmic and imaginative literature, the fault being solely in the schools with their remorseless, grinding round of lessons and examinations? I have my opinion in the matter.

Now the theses that I have thus far tried to set up and maintain are these: — First, that expression cannot be taught as an abstraction; that expression cannot be criticized and corrected till it exists, and that it does not exist till it starts with a burden of thought that is to be carried from a producing mind to a receiving mind. Secondly, that expression, as regards its quality, is the result of natural imbibition or absorption from the individuals' environment; that it cannot be reached to good issues through the intellect, but must be influenced solely through the affections, the taste, the heart; that the storing up of formulated knowledge about the theory of composition is utterly impotent as an agency in making fluent, interesting or even correct writers.

These principles, which I might call axioms of composition writing, I could easily go on asserting and reasserting, illustrating and urging, till my time were all gone, and you were left unconvinced of their practicableness, of their fitness to be carried into effect in the actual schoolrooms where your classes are, and where you have got to go to work next Monday. You are saying, of course,— How does he apply these fine aphorisms; how does he get compositions written, and what does he have them written about, and how does he correct them? And I recognize that you are entitled to hear something from me in answer to these questions.

Well, then, I abandon at once the idea of daily, or even of frequent, composition. When compositions are too frequent, they inevitably run to wishwash and triviality. Odious to me is the writing, now-a-days so abundant, that is quickly tossed off, that was written faster than I can read it. You remember the young man whom the Duke of Wellington pronounced over-educated for his intellect: the modern world is full of writers too fluent for their wit. I would not have my composition class contribute its little influences to the culture of the scribbling knack. The educated man or woman should have no morbid propensity to write that should hurry on in advance of the maturing of the thought. You remember, I cause every writer of a composition to contemplate an audience, namely, his classmates. No school time can be given to listening to matter that has not some inherent importance. Hence I insist that the pupil have time to work up his matter; that he go about the process betimes, and expect to have his composition judged chiefly for its merits as embodying interesting and instructive ideas.

Then I try to fertilize the pupils' minds, having a composition crop in view. Occasions for this fertilization abound beyond my power to utilize them all. They occur to me in my reading, in conversation, in my Shakesperian explorations, in my burrowing in libraries and bookstores. I will go a little into detail, with your permission. Of course my ways of doing reveal, first, my personal equation, and you are not identical in personality with me; secondly, my doings will inevitably smack of my environment, which is Boston, and you may live in cities of a different style of beauty, possessing resources of another sort. So take my specimens merely as specimens, and not as dogmas of faith, as if I were from a normal school and were giving you a lesson in pedagogy. The other day I spoke to my oldest girls some ten minutes about the American painters that we are wont to call classic,— Copley, Allston, West, Trumbull, Stuart. Any one of these painters, I exclaimed, would make a perfect composition subject, provided the writer would make the requisite explorations. For example, is there a Copley in Boston? Are there more than one? Where are the Copleys to be seen? Where is his Death of the Earl of Chatham? What pictures by Copley have you seen? Tell about them. Now a girl will of course run over to Cambridge, and explore all galleries in Boston in such a quest as this. She may safely rely on coming before her class with matter that shall be new and profoundly interesting. The same procedure may be followed with any other of the names mentioned, and with peculiarly good results in the case of foreign painters whose works are abundantly engraved, like those of Hogarth and Turner. I suggested, hardly hoping the theme would be taken in hand by any one, Boileau's *Art Poétique*; but a girl did take it, utilized her French, read the poem, gave a good account of it, with quotations appositely made. So a girl did with Horace's Ars Poetica, utilizing her Latin. I should not hesitate to commend a book of Vida's Poetica, in the Latin to a Latin scholar, expecting her to come to me for help, but in Prof. Cook's English to almost any girl. I suggested Shakespeare's treatment of old age, and a girl read all the plays for her material. An excellent topic is the relation between Shakespeare's "As You Like It" and Lodge's novel of "Rosalynde," whence he drew his plot. Another is, Shakespeare's clowns, and how the clowns came into the Elizabethan drama. Apropos of Comus, a good topic is the Masque of the early seventeenth century, with Addington Symonds as a guide. And Symonds suggests the pre-Shakesperian dramas — the crude plays from which Marlowe and Shakespeare developed the literature that we find to-day so astonishing, so unapproachable. A girl loves to sit over Sylvester's "Du Bartas," and enjoys the racy Elizabethan English of it, its suggestions of "Paradise Lost"; and she quotes passages that she knows will please her mates, knowing also that she will surely have an opportunity to read them, or, mayhap, to print them in the school paper. Give to girls, Cowper's dependence on women; Fanney Burney's girlhood, gathered from her diary; the women of Crawford; the mystery of Fenella; the supernatural element in "The Abbot."

Now I feel that I ought to ask your forgiveness for obtruding so much of my private business on your attention; but I wish to say that these topics I have named are merely specimens. Such topics swarm upon you if you are a student of literature at the fountain head and not in manuals. And yet again I wish to say that you absolutely must not be skeptical about the *ability* of your older pupils to be interested in them and to treat them worthily. I might post this thesis as a third to the two I have named above; namely, that youth of eighteen or twenty can and will do anything whatever that requires courage, perseverance, patience, provided only that their hearts are enlisted in the work. By assuming that such investigations as I have hinted are beyond the capacity of his pupils, the teacher of literature merely shows that he has himself never made such investigations. Do you not know that it is a great trick of the devotee of rigid method to assert with confidence that his particular community, his particular committee, his particular superintendent or principal will tolerate nothing else than rigid method? No, it is ourselves that are at fault: we, we teachers are wanting.

The practice I have recommended, of letting pupils write the results of research, I use as an important resource in the teaching of literature as well as in teaching composition. It saves the monotony of having all pupils do the same thing. But above all, it makes perfectly feasible the total abolition of examinations. Believe me, I have for years held no examinations. Have you an idea of the sense of freedom, of enlargement, of naturalness, that you may bless yourselves with by simply resolving to have no more examinations? Examinations and marks hold us to narrow grooves of work. They are utterly hostile to genuine intellectual enthusiasm. Marks, in education, are a cheap motive; and just as, in finance, according to Gresham's law, a cheap money always drives out a more valuable one, so, by the Gresham's law of education, a cheap motive drives out a noble motive. Abolish examinations as the first step to a sound method.

And when you have got rid of the examination incubus, and so have taken the first step to a sound method, then you can take the second step and adapt some appreciable portion of your instruction to the individual pupil. In the way I have described, you give each pupil his task of research,— he has this task all to himself, but shall publish his results at last for the benefit of all. Are thirty-five pupils, all crammed with the same lesson, an interesting company? How shrewdly we teachers do contrive to make our procedures altogether wooden, conventional, stale, flat, unprofitable! Every youth comes to his class, knowing that the rest all know just what he knows, that he can interest or enlighten nobody else, and that nobody else can interest or enlighten him. What further element of stupidity could you add to these conditions?

Now a word as to the correction of these compositions, about whose inception I have taken such pains, whose destination I have undertaken to make cheerful and inspiring. We will suppose a youth to have succeeded in finding facts worth communicating to his fellows,— facts new and piquant, fit to be published by lecture or in print. Shall this youth be given the rostrum for his ten or fifteen minutes; shall his paper go to the editor of the Tripod, the Distaff, the Jabberwock? Very likely not; for the reason that it is not well enough made. And just now is the propitious moment for what we call correction. Why cannot this most interesting paper be passed round the class, for its members to read at their leisure, to take home and show to the various families? Why can it not be printed for the whole school public to admire? To answer these queries is to correct the composition: and please note, this is correction absolutely solicited by the corrected party; and this corrected party is in a mood of mind querulous, disappointed, grieving, perhaps indignant. He pleads that he spent days in looking up that matter, and is sure he knows something about it that the rest do not;

This you allow; but you remain inexorable; and ere long your pupil bethinks himself of a last resource: may he re-write his composition, under your supervision: and you graciously permit him this special privilege.

Of these compositions you must not have too many. On each one must be concentrated a due amount of labor in research, of pains in execution. The plan of frequent compositions is hostile to nice finish, to careful choice of phrase. I would preach perpetually the gospel of painstaking; and I would fain practice what I preach. So I appear again in the character of an abolitionist, and this time I ask you to abolish your habit of patient reading of great masses of compositions as a home employment. It is a sure proof that your method is wrong if you overload yourself with evening work. Weavers in a cotton mill are fined for poor work. I am sure small balances of salary would be due to English teachers at the month's end if they were fined for slighted reading of compositions. You give yourself too much of this work to do, and so cannot do it well. I do not blame you for doing it ill: I only blame you for lack of courage in allowing yourself to be imposed upon, whether by tyrant custom or tyrant superintendent. Under the burden of too much composition reading, you must of necessity resort to routine: your mind wanders: the red ink marks go down of themselves. Your nerves are not of iron. Even if you are a woman, and have a woman's patience, a woman's complaisance, you cannot endure the strain: you grow desiccated, repressed: you cease to read old books, which are the perennial spring of a literary enthusiasm, of culture of the taste, of refreshment of the soul. Those who engaged you to be an English teacher did not really mean to employ you as a drudge. I implore you to cease off hand to be one. To be an English teacher means, first of all, to be a student of literature: it means, to be a devotee of Shakespeare, of Tennyson, and of all the poets between; it means, to have a curiosity about the oldest forms of English, and about the growth of our language to its present state. Whatever happens, you must grow in your English culture. Not to grow is, intellectually, to die. Remember, it is your duty to *live*.

A LIST

OF THE

BOARDS OF SCHOOL VISITORS

TOWN SCHOOL COMMITTEES,

AND

BOARDS OF EDUCATION.

The Chairman is indicated in each case by *C.;* the Secretary by *S.;* and Acting Visitor by *A. V.*

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ANDOVER,*	E. R. Post,	Andover,	1897
	Jas. H. Marsh, *S.*,	“	1897
	C. L. Backus,	“	1897
	C. B. Stearns,	“	1897
	E. P. Skinner, *C.*,	“	1898
	A. H. Lyman,	“	1898
	R. E. Phelps, *A. V.*,	“	1898
	E. D. White,	“	1898
	M. P. Yeomans,	“	1899
	M. S. Topliff,	“	1899
	H. F. Standish,	“	1899
	S. H. Daggett,	“	1899
ANSONIA,†	W. H. Kane, *C.*,	Ansonia,	1897
	C. H. Vandercook,	“	1897
	H. A. Peck, *S.*,	“	1897
	Rev. W. F. Markwick,	“	1898
	Henry W. Case,	“	1898
	Estelle J. Mills, *A. V.*,	“	1899
	W. B. Camp,	“	1899
	Wm. Bourn,	“	1899
ASHFORD,	Henry R. Woodward, *C.*, *A. V.*,	Mansfield,	1897
	Harvey W. Mowrey, *S.*, *A. V.*,	Westford,	1897
	G. E. S. Amidon,	East Willington,	1898
	E. B. Bicknell,	Warrenville,	1898
	Jas. E. A. Knowlton,	West Ashford,	1899
	Wilbur Lanphear,	Ashford,	1899
AVON,	Shubal Thompson,	Avon,	1897
	L. F. North, *S.*, *A. V.*,	“	1897
	G. V. Lusk,	Unionville,	1898
	Rev. P. R. Day,	Hartford,	1898
	Chas. F. Froidevaux,	Collinsville,	1899
	John L. North, *C.*, *A. V.*,	Avon,	1899
BARKHAMSTED,	C. S. Roberts,	Riverton,	1897
	Frank L. Stephens, *A. V.*,	“	1897
	Edward J. Youngs, *C.*,	Pleasant Valley,	1898
	S. H. Case, *S.*, *A. V.*,	Barkhamsted,	1898
	L. M. Case,	“	1899
	M. B. Frazier,	Pleasant Valley,	1899
BEACON FALLS,*	Emerson J. Terrell, *S.*,	Beacon Falls,	1897

* Town School Committee. † Board of Education.

Towns.	Names.	P. O. Address.	Term Expires.
Beacon Falls,*........	George T. Clark,..	Beacon Falls, ...	1897
	Cornelius W. Munson, ...	" "	1898
	George S. Bronson, ...	" "	1898
	Daniel J. Carrington, . ..	" "	1899
	Homer D. Bronson, *C., A. V.,*	" "	1899
Berlin,....	A. A. Barnes, *C.,*	East Berlin, ...	1897
	W. W. Mildrum,..	" "	1897
	John Norton, ...	Berlin, ...	1898
	Daniel Webster, *S., A. V.,* ..	"	1898
	Francis Deming, ...	"	1899
	W. J. Corrigan, ...	Meriden, ...	1899
Bethany,..............	Samuel R. Woodward, *S., A. V.,*	Bethany, ...	1897
	Noyes D. Clark, ...	New Haven, ...	1898
	Charles E. Peck, *C., A. V.,* ..	Bethany, ...	1899
Bethel,*......	Rev. H. L. Slack, *C., A. V.,* ..	Bethel, ...	1897
	William S. Wortman, *A. V.,* ..	"	1897
	Thomas C. Mansfield, ...	"	1897
	Rev. Wm. Morrall, ...	"	1898
	Theodore H. Smith, ...	"	1898
	John O. Beebe, ...	"	1898
	Elliot D. Smith, ...	"	1899
	Andrew J. Hallock, ...	"	1899
	Charles Bailey. *S.,*	"	1899
Bethlehem,............	George C. Stone, *A. V.,* ..	Bethlehem, ...	1897
	Samuel P. Hayes, *S., A. V.,* ..	"	1897
	Leverett P. Judd, *C.,*	"	1898
	Royal B. Lake, ...	"	1898
	Nehemiah L. Bloss, ...	"	1899
	Arthur T. Minor, ...	"	1899
Bloomfield,...........	Hattie D. Miller, ...	Bloomfield, ...	1897
	Alfred C. Case, *C.,*	"	1897
	George F. Humphrey, ...	"	1897
	Frank D. McLean, ...	"	1898
	George D. Gabb, ...	"	1898
	Alfred N. Filley, ...	"	1898
	Adella V. Hubbard, ...	"	1899
	John McCornick, ...	"	1899
	Henry C. Cadwell, *S., A. V.,* .	"	1899
Bolton,..	Calvin Hutchinson, *C.,*	Bolton, ...	1897
	William R. Grant,..	"	1897
	Myron W. Sperry, *S.,*	"	1898
	Dr. C. F. Sumner, ...	"	1898
	Adelaide E. Sperry, *A. V.,* ..	"	1899
	Wm. E. Burke, ...	Highland Park, ...	1899
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	James Bishop, *S.,*	Fitchville, ...	1897
	Frank R. Rose, *A. V.,*.. ..	Norwich Town, ...	1897
Branford,*............	Stone J. Bergstrom, ...	Branford, ...	1897
	Dr. C. W. Gaylord, *C.,* ..	"	1897
	Thomas P. Carney, ...	"	1897
	Dr. W. H. Zink, ...	"	1897
	Henry W. Averill, ...	"	1898
	Arthur E. Kingsbury, ...	"	1898
	Frank W. Jerold, ...	"	1898
	Michael F. O'Brien, ...	"	1898
	John J. V. Cunningham, *S.,* ..	Branford, Lock Box 425,	1899
	Frank E. Smith, ...	Stony Creek, ...	1899
	John T. Sliney, ...	Branford, ...	1899
	Rev. T. S. Devitt, *A. V.,* ..	"	....
Bridgeport,*..........	David F. Read, *A. V.,*.. ..	Bridgeport, ...	1897
	Patrick Coughlin, *A. V.,* ..	"	1897
	Peter Gabriel, *A. V.,*	"	1897
	Frank M. Canfield, *A. V.,* ..	"	1897
	Peter W. Wren, *C., A. V.,* ..	"	1898
	Frank Miller, *A. V.,*	"	1898
	Dr. Clarence N. Payne, *A. V.,*.	"	1898
	Elmer S. Youngs, *A. V.,* ..	"	1898
	Edward F. Hallen, *S., A. V.,*..	"	1899
	John N. Near, *A. V.,*	"	1899
	Dr. George C. Porter, *A. V.,* ..	"	1899
	Dr. Chas. C. Godfrey, *A. V.,* ..	"	1899
	Chas. W. Deane, Supt.,.. ..	"	
Bridgewater, ...	Reuben J. Keeler, *C.,*	Bridgewater, ...	1897

* Town School Committee.

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BRIDGEWATER,	Harmon W. Treat,	Bridgewater,	1897
	Eli Sturdevant,	“	1898
	Stephen P. Treat, *S.*, *A. V.*,	“	1898
	Marcus B. Mallett,	“	1899
	Burton E. Canfield,	“	1899
BRISTOL,	C. L. Wooding, *S.*, *A. V.*,	Bristol,	1897
	C. W. Brown,	Forestville,	1897
	Rev. C. H. Riggs,	Bristol,	1898
	W. A. Dunbar, *C.*,	“	1898
	Dr. J. J. Wilson,	“	1899
	Mrs. Philena Peck,	“	1899
BROOKFIELD,	F. H. Beers,	Hawleyville,	1897
	Clarence E. Vroman,	Brookfield,	1898
	Charles H. Camp,	“	1898
	Newman Worden,	Brookfield Center,	1899
	E. N. Hawley, *S.*, *A. V.*,	Hawleyville,	1899
BROOKLYN,*	Frank Day, *S.*, *A. V.*,	Danielson,	1897
	Chas. S. Bill,	“	1897
	Harvey P. Robinson,	Brooklyn,	1898
	Lyman W. Harris,	Wauregan,	1898
	Henry H. Green, *C.*,	Danielson,	1899
	C. S. L. Marlor,	Brooklyn,	1899
BURLINGTON,	Mrs. Sarah Bradley, *S.*, *A. V.*,	Bristol,	1897
	Rev. J. J. Quinn, *A. V.*,	Collinsville,	1897
	Benjamin B. Hinman,	Burlington,	1898
	Mrs. John Reeves,	“	1898
	Adrian Moses, *C.*,	Unionville,	1899
	Rev. F. A. Holden,	Burlington,	1899
CANAAN,	Levi Ganser, *A. V.*,	Huntsville,	1897
	C. E. Ford,	Falls Village,	1898
	Dr. Francis Skiff,	“	1898
	Rev. C. W. Hanna, *S.*, *A. V.*,	“	1899
	Rev. J. H. Bohlman,	“	1899
	Nelson J. Dean, *C.*, *A. V.*,	Huntsville,	1899
CANTERBURY,	Dwight B. Bushnell, *C.*,	Canterbury,	1897
	Dr. John O. Smith, *A. V.*,	South Canterbury,	1897
	Albert C. Greene,	Westminster,	1897
	Mrs. Sarah E. Hull,	South Canterbury,	1898
	Mrs. Carrie L. Ensworth,	Brooklyn,	1898
	Frank V. Lyon,	Canterbury,	1898
	Andrew T. J. Clark,	Brooklyn,	1899
	Miss Susie E. Witter,	Packerville,	1899
	Miss Olive D. Sanger, *S.*,	Canterbury,	1899
CANTON,	W. E. Simonds, *C.*, *A. V.*,	Collinsville,	1897
	James Case, *A. V.*,	“	1897
	William Hill, *A. V.*,	Collinsville,	1898
	Burton O. Higley, *S.*, *A. V.*,	Canton,	1898
	C. H. Stevens, *A. V.*,	Canton Centre,	1899
	George J. Case, *A. V.*,	Canton,	1899
CHAPLIN,*	Dr. Charles M. Knight, *A. V.*,	Chaplin,	1897
	Frank C. Lummis, *S.*,	“	1897
	Albert L. Church,	“	1898
	Newell C. Hunt, *C.*,	“	1898
	John L. Murdock,	“	1899
	Merrick Barton,	“	1899
CHATHAM,	A. H. Conklin, *C.*,	East Hampton,	1897
	David B. Dickinson,	Cobalt,	1897
	Davis S. Strong, *S.*, *A. V.*,	Middle Haddam,	1897
	Rev. Geo. H. Lamson,	East Hampton,	1898
	Dr. Levi Jewett,	Cobalt,	1898
	Albert H. West,	Haddam Neck,	1898
	Ernest G. Cone,	East Hampton,	1899
	S. Mills Bevin,	“ “	1899
	Mrs. Florence C. Strong, *A. V.*,	Middle Haddam,	1899
CHESHIRE,	Edwin R. Lawton,	West Cheshire,	1897
	Charles M. Hotchkiss,	Cheshire,	1897
	Frederick Doolittle, *S.*, *A. V.*,	“	1898
	Dr. Edward T. Cornwall,	“	1898
	Dr. M. M. Chamberlain, *C.*,	“	1899
	James E. McCabe,	“	1899
CHESTER,*	T. M. Gandy,	Chester,	1897
	J. B. Hardy,	“	1897
	Washington F. Willcox, *C.*,	“	1898
	F. W. Silliman, *S.*, *A. V.*,	“	1898

* Town School Committee.

Towns.	Names.	P. O. Address.	Term Expires.
Chester,*	Dr. F. S. Smith,	Chester,	1899
	Andrew E. Warner,	“	1899
Clinton,*	George E. Elliot, *C.*, *A. V.*,	Clinton,	1897
	Sam'l S. Wilcox, *A. V.*,	“	1897
	Elias W. Wellman,	“	1897
	Henry L. Wellman,	“	1897
	Henry Stevens,	“	1898
	Sturgis G. Redfield, *S.*,	“	1898
	Alonzo H. Stevens,	“	1898
	James A. Spencer,	“	1898
	Hosmer A. Tryon,	“	1899
	F. G. Woodstock,	“	1899
	Oliver B. Swain,	“	1899
	Clifford Evarts,	“	1899
Colchester,	John R. Backus, *A. V.*,	Colchester,	1897
	W. C. Burpee, *S.*,	“	1897
	Samuel P. Willard,	“	1898
	I. F. Loomis, *C.*,	Westchester,	1899
	E. E. Brown,	Comstock's Bridge,	1899
Colebrook,	Newton Griswold,	North Colebrook,	1897
	Hiram D. Northrop,	Colebrook,	1897
	Homer P. Deming, *S.*,	Robertsville,	1897
	George S. Ives,	Colebrook River,	1898
	Robert E. Lawrence,	Mill Brook,	1898
	John A. Moore,	Robertsville,	1898
	S. A. Cooper, *A. V.*,	Colebrook,	1899
	Howard Smith, *C.*,	“	1899
	Francis H. Bushnell,	Colebrook River,	1899
Columbia,	William A. Collins,	Columbia,	1897
	William H. Yeomans, *C.*,	“	1897
	Wm. C. Robinson,	Hebron,	1898
	Frederick A. Abell,	Columbia,	1898
	Joseph N. Clark,	“	1899
	J. P. Harvey, *S.*, *A. V.*,	“	1899
Cornwall,	Dr. J. A. Livingston, *C.*, *A. V.*,	West Cornwall,	1897
	Rev. John Pierpont,	“ “	1897
	L. J. Nickerson,	“ “	1897
	Dr. Wm. M. Curtis,	Cornwall Bridge,	1897
	Rev. E. C. Starr,	Cornwall,	1897
	Philo M. Kellogg, *S.*, *A. V.*,	“	1897
Coventry,	H. Perkins Topliff, *A. V.*,	South Coventry,	1897
	Mrs. Lydia A. Mason, *A. V.*,	“ “	1897
	John Brown, *A. V.*,	Merrow,	1898
	Charles R. Hall, *C.*, *A. V.*,	Coventry,	1898
	Alexander S. Hawkins, *A. V.*,	Willimantic,	1899
	Andrew Kingsbury, *S.*, *A. V.*,	Coventry,	1899
Cromwell,*	G. S. Andrus,	Cromwell,	1897
	J. F. Murphy,	“	1897
	Dr. Frank K. Hallock, *S.*,	“	1897
	R. B. Hale,	“	1898
	Chas. T. Pratt,	“	1898
	T. Anderson,	“	1898
	Wm. E. Hulbert, *C.*, *A. V.*,	“	1899
	Rev. Henry G. Marshall,	“	1899
	Wm. N. Noble,	“	1899
Danbury,	Benedict Starr, *A. V.*,	Danbury,	1897
	Dr. Geo. E. Lemmer, *A. V.*,	“	1897
	Howard B. Scott, *A. V.*,	“	1898
	Dr. Geo. A. Gilbert, *A. V.*,	“	1898
	William D. Lane, *C.*, *A. V.*,	“	1899
	Rev. A. C. Hubbard, *S.*, *A. V.*,	“	1899
Darien,	Rev. Sam'l J. Austin, *C.*, *A. V.*,	Darien,	1897
	J. W. Emmons,	Noroton Heights,	1897
	Dr. E. T. Payne,	“ “	1898
	Wm. E. Street,	Darien,	1898
	Rev. Louis French, *S.*,	Noroton,	1899
	Dr. George H. Noxon,	Darien,	1899
	Rev. Arthur Requa, *A. V.*,	Noroton,	....
Derby,†	John C. Reilly,	Darien,	1897
	H. Holton Wood, *C.*,	Derby,	1897
	John McEnerney,	“	1897
	Robert L. Gilbert, *S.*,	“	1899

* Town School Committee. † Board of Education.

Towns.	Names.	P. O. Address.	Term Expires.
DERBY,†	Dr. George L. Beardsley,	Derby,	1899
	Sidney E. Gesner,	“	1899
	John W. Peck, *Supt.*,	“	....
DURHAM,	Rev. Joseph Hooper, *C.*, *A.V.*,	Durham Centre,	1899
	Mary J. Camp,	Durham,	1897
	Mrs. Ellen Matthewson,	Durham Centre,	1898
	William T. Coe,	Durham,	1898
	Stephen A. Seward,	Durham Centre,	1899
	Geo. W. Newton, *S.*,	“ “	1899
EASTFORD,	Rev. John P. Trowbridge,	Eastford,	1897
	A. L. Johnson,	“	1897
	M. F. Latham, *C.*,	Phoenixville,	1898
	George A. Keach,	North Ashford,	1898
	S. A. Wheaton,	Phœnixville,	1899
	Rev. C. M. Jones, *S.*, *A.V.*,	Eastford,	1899
EAST GRANBY,	Moses E. Seymour,	Tariffville,	1897
	Jason R. Viets,	East Granby,	1897
	James A. Griswold, *C.*,	“	1898
	Chas. W. Bates,	“	1898
	Rev. B. F. Case, *S.*, *A. V.*,	“	1899
	James A. Holmes,	Tariffville,	1899
EAST HADDAM,	Julius Attwood, *C.*, *A. V.*,	East Haddam,	1897
	Miss Sarah Parker, *A.V.*,	“ “	1897
	Rev. Jabez Marshall, *A.V.*,	Moodus,	1898
	Norris W. Rathbun, *S.*, *A. V.*,	Millington,	1898
	Rev. W. S. Wendel, *A. V.*,	Hadlyme,	1899
	Rev. Geo. L. Edwards, *A. V.*,	Millington,	1899
EAST HARTFORD,	Rev. Geo. A. Bowman, *A. V.*,	East Hartford,	1897
	F. Howard Ensign,	Silver Lane,	1897
	Elijah Ackley, *C.*,	East Hartford,	1897
	Joseph O. Goodwin, *S.*, *A. V.*,	“ “	1898
	Dr. Walter G. Murphy,	“ “	1898
	Dr. Franklin H. Mayberry, *A. V.*,	Burnside,	1898
	Rev. Francis P. Bacheler, *A. V.*,	Hockanum,	1899
	Miss Annie E. Olmstead, *A.V.*,	East Hartford,	1899
	Dr. Thos. S. O'Connell,	“ “	1899
EAST HAVEN,	Miss Lottie E. Street, *A. V.*,	East Haven,	1897
	Charles W. Bradley, *S.*, *A. V.*,	“	1897
	Grove J. Tuttle, *C.*,	“	1898
	Horace W. Chidsey,	“	1898
	Ebenezer Gilbert,	“	1899
	Charles W. Granniss,	New Haven branch office,	1899
EAST LYME,	Dr. Frederic H. Dart, *C.*,	Niantic,	1897
	Daniel Fraser,	“	1897
	H. R. Harding,	“	1897
	Dr. E. C. Chipman,	“	1897
	B. R. Chapman,	East Lyme,	1897
	Frank Burch,	“	1897
	Miss Celeste E. Bush, *A. V.*,	Niantic,	....
EASTON,	Geo. J. Banks, *A.V.*,	Easton,	1897
	Chas. S. Everett, *A. V.*,	“	1897
	Chas. Blakeman, *A. V.*,	“	1898
	Geo. S. Gillette, *A. V.*,	“	1898
	Henry Osborne, *C.*, *A. V.*,	“	1899
	Samuel Turney, *S.*, *A. V.*,	“	1899
EAST WINDSOR.*	Wm. F. English, *C.*,	East Windsor,	1897
	John B. Noble, *A.V.*,	East Windsor Hill,	1897
	Howard W. Tallard,	Broad Brook,	1897
	Howard O. Allen,	“ “	1898
	Mahlon H. Bancroft,	Warehouse Point,	1898
	Andrew Hamilton,	Broad Brook,	1898
	Mrs. James Price,	Warehouse Point,	1899
	George S. Phelps,	“ “	1899
	Orson S. Wood, *S.*, *A. V.*,	Windsorville,	1899
ELLINGTON,	M. H. Aborn,	Ellington,	1897
	J. M. Marks, *S*,	“	1897
	D. F. Lull,	Rockville,	1897
	O. C. Eaton, *C.*, *A. V.*,	Ellington,	1898
	Albert Pinney,	Rockville,	1898
	E. T. Davis,	Ellington,	1898
	Lucius A. Aborn,	Crystal Lake,	1899
	John T. McKnight,	Ellington,	1899

*Town School Committee. † Board of Education.

TOWNS.	NAMES.	P. O. Address.	Term Expires.
ELLINGTON,	James M. Talcott,	Ellington,	1899
	F. B. Nangle, *A. V.*,	"	....
ENFIELD,*	Lyman A. Upson,	Thompsonville,	1897
	George F. Chapin, *S.*,	"	1897
	Olin S. Olmstead,	Hazardville,	1897
	Ashmun P. Prickett, *A. V.*,	"	1898
	Amos D. Bridge,	"	1898
	Dr. Geo. T. Finch, *A. V.*,	Thompsonville,	1898
	Rev. Oliver W. Means, *A. V.*,	Enfield,	1899
	Samuel A. Booth, *C.*,	"	1899
	Dr. John H. Dowling,	Thompsonville,	1899
ESSEX,*	Dr. Frank A. Shailer, *C.*, *A. V.*,	Essex,	1897
	Thos. D. Coulter,	"	1897
	George M. Clark,	Centerbrook,	1897
	John Halliday,	Essex,	1897
	Chas. Harrington, *S.*,	"	1898
	R. H. Comstock,	Ivoryton,	1898
	C. M. Jones,	"	1898
	George H. Hardman,	Essex,	1898
	Dr. W. P. Chapman, *A. V.*,	"	1899
	Dr. Alonzo Shaffer,	"	1899
	William Baker,	"	1899
	E. T. Pratt,	"	1899
FAIRFIELD,*	E. Livingston Wells, *C.*, *A. V.*,	Southport,	1897
	Michael B. Lacey, *A. V.*,	Plattsville,	1897
	Andrew P. Wakeman, *A. V.*,	Fairfield,	1898
	Dr. M. V. B. Dunham, *A. V.*,	Greenfield Hill,	1898
	Rev. T. J. Coleman, *A. V.*,	Fairfield,	1899
	Moses E. Banks, *S.*, *A. V.*,	Box 213, Bridgeport,	1899
FARMINGTON,	Samuel Frisbie,	Unionville,	1897
	Nelson O. Keyes,	Farmington,	1897
	H. W. Barbour, *S.*, *A. V.*,	"	1897
	Erastus Gay, *C.*,	"	1898
	Rev. D. D. Marsh, *A. V.*,	Unionville,	1898
	Charles Brandegee,	Farmington,	1898
	Martin L. Parsons,	Unionville,	1899
	Geo. F. Dunning,	Farmington,	1899
	John Riley,	"	1899
FRANKLIN,	Henry Bellows, *A. V.*,	Baltic,	1897
	George L. Ladd, *C.*, *A. V.*,	North Franklin,	1897
	George E. Starkweather, *A. V.*,	Franklin,	1898
	George H. Griffing, *S.*, *A. V.*,	"	1898
	O. B. Hyde, *A. V.*,	Baltic,	1899
	M. E. Mullin, *A. V.*,	Franklin,	1899
GLASTONBURY,	W. I. Goodale, *A. V.*,	Addison,	1897
	T. H. L. Tallcott, *A. V.*,	Glastonbury,	1897
	Mrs. Addie S. Hale, *S.*, *A. V.*,	South Glastonbury,	1898
	Wm. H. Griswold, *A. V.*,	Addison,	1898
	A. A. Babcock, *C.*, *A. V.*,	South Glastonbury,	1899
	Rev. J. Betts, *A. V.*,	East Glastonbury,	1899
GOSHEN,	E. S. Richards,	Milton,	1897
	Volney E. Merwin,	West Goshen,	1897
	A. G. Creamer,	Goshen,	1898
	Harrison H. Ives, *S.*, *A. V.*,	West Goshen,	1898
	Alice E. Carlisle, *C.*,	Goshen,	1899
	W. E. Gaylord,	"	1899
GRANBY,	Condit Hayes,	West Granby,	1897
	O. D. Case,	Granby,	1897
	George S. Godard,	North Granby,	1897
	C. P. Loomis,	Granby,	1898
	L. C. Spring, *C.*, *A. V.*,	Granby,	1898
	F. J. Jewett, *S.*, *A. V.*,	Granby,	1898
	Henry J. Dewey,	Granby,	1899
	Charles B. Case,	West Granby,	1899
	Dr. R. W. Chatfield,	Granby,	1899
GREENWICH,	Dr. J. L. Marshall, *S.*, *A. V.*,	Coscob,	1897
	Thomas E. Fox, *A. V.*,	Greenwich,	1897
	Thomas F. Hawley, *C.*, *A. V.*,	Glenville,	1898
	Silas E. Mead, *A. V.*,	Round Hill,	1898
	Henry C. Boswell, *A. V.*,	Greenwich,	1899
	Isaac L. Mead, *A. V.*,	"	1899
GRISWOLD,	John D. Ecclestone, *S.*, *A. V.*,	Jewett City,	1897

* Town School Committee.

Towns.	Names.	P. O. Address.	Term Expires.
GRISWOLD	Mrs. S. L. B. Burnham, *A. V.*,	Jewett City,	1897
	Mrs. E. M. Swift,	“	1897
	John A. Owen, *C.*,	“	1898
	John C. Hawkins,	“	1898
	Mrs. Adeline A. Gardiner,	“	1898
	William R. Palmer,	“	1899
	Rollin R. Church,	“	1899
	Byron P. Young,	Glasgo,	1899
GROTON,	Chas. R. Heath, *S.*, *A. V.*,	Mystic,	1897
	Joseph Hull, *A. V.*,	Old Mystic,	1897
	Miss Alice E. Turner, *A. V.*,	Groton,	1897
	Mrs. Clara B. Whitman, *A. V.*,	“	1898
	Horace Clift, *C.*, *A. V.*,	Mystic,	1899
	Augustin S. Chester, *A. V.*,	Noank,	1899
GUILFORD,	Rev. Geo. W. Banks, *C.*, *A. V.*,	Guilford,	1897
	Dr. Geo. H. Beebe, *S.*, *A. V.*,	“	1897
	Edward M. Leete,	“	1897
	E. Walter Leete,	Leete's Island,	1898
	Erwin W. Rossiter,	North Guilford,	1898
	Rev. W. G. Andrews,	Guilford,	1898
	John W. Norton,	“	1899
	Rev. W. H. Deane, *A. V.*,	North Guilford,	1899
	Dr. R. B. West,	Guilford,	1899
HADDAM,	Orrin Shailer,	Shailerville,	1897
	Dr. Selden W. Noyes,	Higganum,	1897
	Daniel P. Smith,	“	1897
	Robert B. Clark,	“	1898
	Dr. LeRoy A. Smith, *C.*,	“	1898
	William F. Bailey,	“	1898
	T. C. Richards,	“	1899
	Gustaf B. Carlson,	“	1899
	Rev. E. E. Lewis, *S.*, *A V.*,	Haddam,	1899
HAMDEN,*	John M. Hindinger,	Highwood,	1897
	Henry R. Stadtmuller,	Whitneyville,	1897
	Arthur E. Woodruff, *C.*,	Mount Carmel,	1897
	Rev. Chas. F. Clarke, *S.*, *A. V.*,	Whitneyville,	1898
	Cullen B. Foote, *A. V.*,	New Haven, Box 888,	1898
	Hervey T. Potter,	“ Box 1379,	1898
	Sereno T. Cook,	Mount Carmel Center,	1899
	Burton A. Davis,	Whitneyville,	1899
	Hubert E. Warner,	New Haven, 33 Br'dway,	1899
HAMPTON,	Addison J. Greenslit,	Hampton,	1897
	Joseph W. Congdon,	Howard's Valley,	1897
	Allen Jewett,	Clark's Corners,	1897
	Carll A. Lewis, *S.*, *A. V.*,	Elliott,	1898
	Frank E. Whittaker,	Hampton,	1898
	Thos. McLoughlin,	Howard's Valley,	1898
	Henry Clapp, *C.*,	Rawson,	1899
	C. B. Jewett,	Hampton,	1899
	Austin E. Pearl,	“	1899
HARTFORD,	Welthea T. Day, *S.*,	Hartford, 29 B'k'ham st.,	1897
	Charles C. Beach,	“ 199 Main st.,	1897
	Leonard A. Dickinson,	“ 244 “	1897
	Philander C. Royce,	“ 53 T'mbull st.,	1898
	John H. Brocklesby,	“ 274 Main st.,	1898
	Andrew F. Gates, *Supt.*,	“ 41 Cent. Row,	1898
	James H. Jarman, *C.*,	“ 291 Main st.,	1899
	Henry Bryant,	“ 650 “	1899
	Joseph P. Tuttle,	“ 333 “	1899
HARTLAND,	E. A. Collins,	East Hartland,	1897
	Horace J. Ward,	Riverton,	1897
	Edgar B. Case,	East Hartland,	1898
	D. W. Merrell, *S.*, *A. V.*,	Hartland,	1898
	Charles Tillapaugh, *A. V.*,	East Hartland,	1899
	E. A. Gaylord, *C.*,	West Hartland,	1899
HARWINTON,*	Albert G. Wilson, *C.*,	Harwinton,	1897
	Clarence M. Ely,	“	1897
	Albert W. Buell,	“	1898
	Dr. Chas. L. Blake, *S.*, *A. V.*,	“	1898
	Martin L. Goodwin,	“	1899
	Walter S. Balch,	“	1899

*Town School Committee.

Towns.	Names.	P. O. Address.	Term Expires.
HEBRON,	Frank R. Post,	Hebron,	1897
	David N. Jones,	Turnerville,	1897
	Charles L. Phelps,	Hebron,	1897
	Henry A. Spafard, *C.*,	“	1898
	Dr. C. H. Pendleton, *S.*, *A.V.*,	“	1898
	James H. Jagger,	“	1898
	Charles G. Allyn,	“	1899
	Hart E. Buell,	Gilead,	1899
	William W. Jones,	“	1899
HUNTINGTON,*	Erastus Bennett,	Derby,	1897
	D. S. Brinsmade, *C.*,	Shelton,	1897
	Horace Wheeler, *S.*,	“	1898
	Edward S. Hawley, *A.V.*,	Huntington,	1898
	Fred Durand, *A. V.*,	Shelton,	1899
	Peter Reilley,	Derby,	1899
KENT,	John Chase, *C.*,	South Kent,	1897
	Chas L. Spooner, *S.*, *A.V.*,	Bull's Bridge,	1897
	Irwin J. Beardsley, *A.V.*,	New Preston,	1898
	Jerome Judd, *A. V.*,	Bulls Bridge,	1898
	G. A. Vincent,	Kent,	1899
	John Slosson, *A. V.*,	Kent Furnace,	1899
KILLINGLY,	Anthony Ames, *S.*, *A. V.*,	Danielson,	1897
	Dr. Henry L. Hammond, *C.*,	Killingly,	1897
	Mrs. Emily C. Merriam,	Danielson,	1897
	John A. Paine,	“	1898
	Henry C. Warren,	“	1898
	Dr. Asahel E. Darling,	Killingly,	1898
	Rose Warren,	East Killingly,	1899
	Frank P. Todd,	Danielson,	1899
	Dr. Charles E. Hill,	East Killingly,	1899
	Dr. Nathaniel Hibbard, *A. V.*,	Danielson,	....
KILLINGWORTH,*	D. K. Stevens, *C.*,	Killingworth,	1897
	N. H. Evarts,	“	1897
	L. L. Nettleton, *S.*, *A. V.*,	Madison,	1898
	E. P. Nichols,	Killingworth,	1898
	J. S. Griswold,	“	1899
	H. F. Marquard,	“	1899
LEBANON,	Isaac Gillette, *S.*, *A. V.*,	Lebanon,	1897
	Rev. D. J. Bliss, *A. V.*,	“	1897
	Rev. R. E. Turner, *C.*, *A. V.*,	“	1899
LEDYARD,	Rev. A. E. Kinmouth, *C.*,	Ledyard,	1898
	Isaac G. Geer, *A. V.*,	“	1898
	George Fanning, *S.*, *A. V.*,	Shewville,	1898
LISBON,	Rev. John W. Payne, *C.*, *A. V.*,	Jewett City,	1897
	George G. Bromley, *S.*, *A. V.*,	“ “	1897
	Mrs. Dora B. Bromley,	“ “	1898
	R. R. Barber,	“ “	1898
	H. L. Reade, *A. V.*,	Jewett City,	1899
	Henry Lyon,	Greeneville,	1899
LITCHFIELD,*	Jas. P. Woodruff, *A.V.*,	Litchfield,	1897
	James P. Catlin, *A.V.*,	Northfield,	1897
	Elbert P. Roberts, *S.*, *A.V.*,	Litchfield,	1898
	Chas. D. Kilbourn, *A. V.*,	Bantam,	1898
	George W. Mason, *C.*, *A.V.*,	Litchfield,	1899
	George A. Smith, *A. V.*,	Milton,	1899
LYME,	Rev. E. F. Burr, *C.*,	Hamburgh,	1897
	Dr. J. G. Ely,	“	1897
	James Sterling,	Bill Hill,	1898
	Rev. J. G. Ward, *S.*,	North Lyme,	1898
	H. B. Sisson,	Hamburgh,	1899
	James Daniels,	“	1899
	J. Ely Beebe, *A.V.*,	North Lyme,	....
MADISON,*	James L. Parker,	Madison,	1897
	John H. Meigs,	“	1897
	Chas. H. Parker,	North Madison,	1897
	Duell W. Stevens,	Durham Center,	1897
	Frank C. Dowd,	Madison,	1898
	Myron H. Munger, *A. V.*,	North Madison,	1898
	J. Myron Hull, *A. V.*,	Madison,	1898
	Jason Dudley,	Clinton,	1898
	Joseph D. Kelsey, *C*, *A.V.*,	Madison,	1899
	Berton B. Munger,	East River,	1899
	Alveno D. Ayer,	Madison,	1899

* Town School Committee. † School Committee.

TOWNS.	NAMES.	P. O. Address.	Term. Expires.
MADISON,*	Webster D. Whedon, *S.*, *A.V.*,	Madison,	1899
MANCHESTER,	Rev. D. A. Haggerty, *A. V.*,	South Manchester,	1897
	Rev. Clarence H. Barber, *C.*,	Manchester,	1897
	Herbert O. Bowers, *A. V.*,	“	1898
	Clinton W. Cowles,	“	1898
	E. A. Lydall, *A. V.*,	“	1899
	Robert P. Bissell, *S.*,	“	1899
MANCHESTER,† (Ninth District.)	Rev. D. A. Haggerty, *A. V.*,	South Manchester,	1897
	Rev. Thomas Simms, *S.*, *A.V.*,	“ “	1897
	C. S. Cheney,	“ “	1898
	Mrs. Anna L. Biddle, *A.V.*,	“ “	1898
	John S. Cheney, *C.*,	“ “	1899
MANSFIELD,	B. F. Koons,	Storrs,	1897
	Albert E. James,	Mansfield Center,	1897
	Charles B. Wyllys,	Eagleville,	1897
	Dr. Edwin G. Sumner, *C.*,	Mansfield Center,	1898
	Andrew M. Grant, *S.*, *A. V.*,	Mount Hope,	1898
	Henry Huntington,	Mansfield Depot,	1898
	Arthur B. Peebles,	Storrs,	1899
	Edmund W. Ellison,	Willimantic,	1899
	Herbert O. Huntington,	Mansfield Center,	1899
MARLBOROUGH,	Jos. L. Ryan,	Marlborough,	1897
	A. J. Ryan,	No. Westchester,	1897
	Ida R. Veasey, *C.*, *S.*, *A. V.*,	Marlborough,	1898
	F. A. Ryan,	“	1898
	Mrs. Lottie C. Tilden, *A.V.*,	“	1899
	Mrs. J. C. Bigelow, *A.V.*,	No. Westchester,	1899
MERIDEN,*	Saxton B. Little,	Meriden, 40 Columbia st.,	1897
	Charles E. Stockder, Jr., *S.*,	“ 51 Griswold st.,	1897
	August Maschmeyer,	“ 86 North ave.,	1897
	Thomas L. Reilly,	“ 52 Pleasant st.,	1897
	Napoleon P. Forcier,	“ 35 State st.,	1898
	Dr. C. H. S. Davis, *C.*,	“ 60 Pleasant st.,	1898
	Charles L. Upham,	“ 31 Wash. Place,	1898
	Homer A. Curtis.	“ 21 Linsley ave.,	1898
	George M. Howells,	South Meriden,	1899
	Richard Allen,	Meriden, 46 Cottage st..	1899
	Andrew W. Tracy,	“ 52 Liberty st.,	1899
	George B. Murdock,	“	1899
	Chas. M. Williams, *Supt.*,	“	...
MIDDLEBURY,	Willard H. Dibble,	Waterbury,	1897
	Mrs. Eli Bronson, *S.*,	Middlebury,	1897
	Rev. W. F. Avery, *A. V.*,	“	1898
	Miss Louise M. Townsend,	“	1898
	Artisan S. Clark, *C.*, *A.V.*,	“	1899
	William Jerman,	“	1899
MIDDLEFIELD,	Mrs. Lucy J. Miller,	Middlefield,	1897
	Otis A. Smith,	“	1897
	C. N. Burnham, *C.*,	“	1898
	Alfred H. Augur, *S.*,	“	1898
	V. H. Coles,	“	1899
	Henry S. Steele,	“	1899
	Rev. John Allender, *A. V.*,	“	....
	Mrs. Sarah L. Dickinson, *A. V.*,	“	....
MIDDLETOWN,	James K. Guy, *C.*,	Middletown,	1897
	Murray Closson, *A. V.*,	“	1897
	Herbert E. Smith,	“	1898
	Charles E. Bacon, *A. V.*,	“	1898
	J. G. Hopkins, *A.V.*,	“	1899
	Charles Reynolds, *S.*,	“	1899
MIDDLETOWN,† (City District.)	Fred. E. Gibbons,	Middletown,	1897
	Lyman D. Mills,	“	1897
	John G. Palmer,	“	1897
	W. U. Pearne, *S.*,	“	1898
	Dr. Leonard Bailey, *A. V.*,	“	1898
	George A. Craig,	“	1898
	Wm. T. Elmer, *C.*,	“	1899
	William S. Whitney,	“	1899
	D. J. Donahoe,	“	1899
	W. B. Ferguson, *Supt.*,	Middletown,	
MILFORD,*	Dr. John S. Cairoli,	Milford,	1897
	A. Clark Platt,	“	1897
	William B Brotherton,	“	1897
	C. A. Tomlinson, *S.*,	“	1897

*Town School Committee. †Board of Education.

TOWNS.	NAMES.	P. O. Address.	Term Expires.
MILFORD,*	Nathan E. Smith, *A. V.*,	Milford,	1898
	Robert W. Clark,	"	1898
	Charles W. Beardsley,	"	1898
	Albert A. Baldwin, *C.*,	"	1898
	William G. Mitchell,	"	1899
	George M. Gunn,	"	1899
	David E. Smith,	"	1899
	Dr. W. S. Putney,	"	1899
MONROE,	Edwin C. Shelton, *C.*, *A. V.*,	Monroe,	1899
	Fred'k Sherman, *A. V.*,	Stepney Depot,	1899
	Chas. E. Osborne, *S.*, *A. V.*,	Stepney,	1899
MONTVILLE,	W. I. Browning,	Oakdale,	1897
	George O. Gadbois, *S.*,	Leffingwell,	1897
	Wm. A. Coggeshall,	Uncasville,	1897
	Charles Bartlett,	Montville,	1898
	P. T. Walsh, *C.*,	"	1898
	Wm. G. Johnson,	Uncasville,	1898
	Joseph Latimer, *A. V.*,	Montville,	1899
	Walter F. Miner, *A. V.*,	Chesterfield,	1899
	Robert C. Burchard, *A. V.*,	Uncasville,	1899
MORRIS,	Homer Stoddard, *C.*, *A. V.*,	Bantam,	1897
	Samuel A. Whittlesey,	Morris,	1897
	George H. Johnson,	East Morris,	1898
	Wm. F. Kirchberger,	"	1898
	Dwight Griswold,	West Morris,	1899
	Silas E. Stockman, *S.*, *A. V.*,	East Morris,	1899
NAUGATUCK,	Rev. J. W. Ellsworth, *S.*, *A. V.*,	Naugatuck,	1897
	Wm. T. Rodenbach, *A. V.*,	"	1897
	Dr. W. J. Delaney, *C.*, *A. V.*,	"	1898
	A. H. Dayton, *A. V.*,	"	1898
	Dr. T. M. Bull, *A. V.*,	"	1899
	Rev. W. J. Fanning, *A. V.*,	"	1899
NEW BRITAIN,*	Dr. M. J. Coholan,	New Britain,	1897
	John Walsh,	"	1897
	W. F. Walker,	"	1897
	Louis E. C. Teich,	"	1897
	R. G. Hibbard, *S.*, *A. V.*,	"	1898
	Dennis Riordan,	"	1898
	J. H. Kirkham,	"	1898
	L. Hoyt Pease,	"	1898
	E. H. Davison,	"	1899
	Philip J. Markley, *C.*,	"	1899
	Morris C. Webster,	"	1899
	Charles S. Andrews,	"	1899
	G. A. Stuart, *Supt.*,	"	....
NEW CANAAN,*	George D. Nichols, *S.*,	New Canaan,	1897
	Rev. James H. Hoyt,	"	1897
	Clarence H. Scoville,	"	1897
	Edwin Hoyt,	"	1898
	Henry Kelley,	"	1898
	Andrew F. Jones,	"	1898
	Benjamin P. Mead, *C.*,	"	1899
	Lewis C. Hall,	"	1899
	C. Elbert Bunckerhoff,	"	1899
	George W. Gamble, *Supt.*,	"	....
NEW FAIRFIELD,	H. H. Wildman, *C.*,	New Fairfield,	1897
	H. O. Leach,	"	1897
	J. J. Treadwell, *S.*, *A. V.*,	"	1898
	Walter Chatterton,	"	1899
	Edward Treadwell,	Sherman,	1899
	C. D. H. Kellogg,	Brookfield,	1899
NEW HARTFORD,	G. C. Beckwith, *A. V.*,	Nepaug,	1897
	C. F. Maxfield,	New Hartford,	1897
	Rev. H. M. Smith, *C.*, *A. V.*,	Pine Meadow,	1898
	Riley M. Olmsted, *S.*,	Nepaug,	1898
	Mrs. W. C. Woodruff,	New Hartford,	1899
	Miss Kate A. Smith,	" "	1899
NEW HAVEN,† (City District.)	Thomas Hooker,	New Haven, 233 C'rch st.,	1897
	John T. Manson,	" 82 "	1897
	Walter I. Connor,	" 22 Clinton av.,	1897
	Frederick B. Farnsworth,	" 30 Audub'n st.,	1898
	Ezekiel G. Stoddard,	" 215 Water st.,	1898
	Harry W. Asher, *C.*,	" 153 Church st.,	1898

*Town School Committee. † Board of Education.

Towns.	Names.	P. O. Address.	Term Expires.
New Haven,† (City District),	Frederick A. Betts,	New Haven, 42 Ch'ch st.,	1899
	James T. Moran,	“ 42 “	1899
	William E. Morgan,	“ 358 Grand av.,	1899
	Horace Day, *S.*,	“	....
	Calvin N. Kendall, *Supt.*,	“	....
New Haven,† (Westville District.)	A. N. Farnham,	Westville,	1897
	M. E. Terrell,	“	1897
	Amos Dickerman,	“	1897
	John N. Austin,	“	1898
	Hobart L. Hotchkiss, *S.*, *A. V.*,	“	1898
	L. Wheeler Beecher, *C.*,	“	1899
	Burton Dickerman,	“	1899
	Thomas McClure,	“	1899
New Haven, (South District.)	Henry S. Shiner, *C.*,	Morris Cove, New Haven,	1897
	Mrs H. S. Shiner, *A. V.*,	“ “	1897
	Julius H. Morris, *S.*,	“ “	1897
	Gilbert Van Sickles, *A. V.*,	New Haven,	1897
Newington,	Henry M. Robbins,	Newington,	1897
	Miss Agnes W. Belden,	“	1897
	Rev. Jared Starr, *S.*,	Newington Junction,	1898
	Robert Francis,	“ “	1898
	John S. Kirkham, *C.*,	Newington,	1899
	Jedediah Deming,	“	1899
	Rev. Herbert Macy, *A. V.*,	“	....
New London,*	George Whittlesey,	New London,	1897
	Lucius E. Whiton,	“ “	1897
	Richard L. Crump,	“ “	1897
	Thomas W. Potter, *C.*,	“ “	1898
	Charles J. Hewitt,	“ “	1898
	Edward H. Wheeler, *S.*,	“ “	1898
	P. Hull Shurts,	“ “	1898
	Frank E. Barker,	“ “	1898
	Frederic S. Newcomb,	“ “	1898
	Chas. B. Jennings, *Supt.*,	“ “	....
New Milford,*	Francis E. Baldwin, *C.*,	Northville,	1897
	Amos H. Bowers,	Gaylordsville,	1897
	W. G. Green,	New Milford,	1897
	Charles H. Soule, *A. V.*,	Gaylordsville,	1897
	V. B. Sterling,	New Milford,	1898
	Cyrus A. Todd,	“	1898
	J. B. Merwin,	“	1898
	Albert Evitts, *S.*,	“	1898
	Charles N. Hall,	“	1899
	John F. Addis,	“	1899
	George W. Richmond,	“	1899
	Chauncey B. Marsh,	“	1899
Newtown,	John H. Brew, *A. V.*,	Sandy Hook,	1897
	Daniel G. Beers, *A. V.*,	Newtown,	1897
	John J. Northrop, *S.*, *A. V.*,	“	1898
	Ezra L. Johnson, *C.*, *A. V.*,	“	1898
	Rev. Otis O. Wright, *A. V.*,	Sandy Hook,	1899
	Dr. J. W. Gordon, *A. V.*,	“	1899
Norfolk,	Silas A. Palmer,	Norfolk,	1897
	John D. Bassett, *S.*, *A. V.*,	“	1897
	William O'Connor,	“	1897
	George R. Bigelow, *A. V.*,	“	1898
	Howard W. Carter,	“	1898
	Burritt Darrow,	“	1898
	Rev. John DePeu,	“	1899
	Edmund Brown, *C.*,	“	1899
	Edward J. Trescott,	“	1899
North Branford,	Dwight M. Foote, *A. V.*,	Northford,	1897
	Newton M. Robinson,	Totokett,	1897
	Rev. F. Countryman, *S.*, *A. V.*,	North Branford,	1898
	T. A. Smith, *C.*,	Northford,	1899
	Wm. D. Ford,	“	1899
	Melville Rose,	North Branford,	1899
North Canaan,	A. T. Roraback, *S.*, *A. V.*,	Canaan,	1897
	E. S. Roberts,	East Canaan,	1897
	George S. Dunning,	“ “	1898
	E. M. Rood,	Clayton, Mass.,	1898
	M. B. Tobey, *C.*, *A. V.*,	Canaan,	1899
	R. C. Newton,	“	1899

* Town School Committee. † Board of Education.

Towns.	Names.	P. O. Address.	Term Expires.
North Haven,	Rev. Wm. Lusk, Jr., *C.*,	North Haven,	1898
	Rev. Alpha H. Simons,	Montowese,	1898
	Edward Pardee,	“	1898
	Robert N. Barnes,	Fair Haven,	1898
	Dr. R. B. Goodyear, *S.*, *A. V.*,	North Haven,	1899
	John A. Tomlinson,	“ “	1899
	Hubert F. Potter,	Montowese,	1899
North Stonington,	Sarah T. Palmer, *C.*, *A. V.*	Pendleton Hill,	1897
	Mrs. Chester S. Maine, *S.*, *A. V.*	North Stonington,	1897
	Addie C. Chapman,	Clark's Falls,	1897
Norwalk,	John H. Light, *A. V.*,	South Norwalk,	1897
	George W. Carroll,	“	1897
	Charles Olmstead, *A. V.*,	Norwalk,	1897
	Abiathar Blanchard,	South Norwalk,	1898
	Rev. H. N. Dunning, *S.*, *A. V.*,	“	1898
	Geo. S. Bell,	“	1898
	Bradley S. Keith, *C.*,	Norwalk,	1899
	Frederick R. Mead,	“	1899
	Charles W. Bell,	Rowayton,	1899
Norwich,	William W. Collins, *S.*, *A. V.*,	Norwich,	1897
	Joseph T. Aiken,	Taftville,	1897
	Franklin H. Brown, *C.*,	Norwich,	1897
	Joseph T. Fanning,	“	1898
	H. W. Hale,	Norwich Town,	1898
	Frank T. Maples,	“ “	1898
	Charles W. Bradbury,	Norwich,	1899
	Dr. Geo. Thompson,	Taftville,	1899
	T. A. Perkins,	Norwich,	1899
Norwich (Town St. Dist),†	A. W. Dickey,	Norwich Town,	1897
	Gardiner Greene,	Norwich,	1897
	Wm. B. Lathrop,	Norwich Town,	1897
	Rev. Wm. S. Palmer, *C.*, *A. V.*,	“ “	1898
	Miss M. P. Gilman, *A. V.*,	Norwich,	1898
	Miss Georgia Case, *S.*,	Norwich Town,	1898
	Lewis A. Hyde,	Norwich,	1899
	Joel Foster,	Norwich Town,	1899
	Charles Brady,	“ “	1899
Norwich (Central Dist.),†	Luther R. Case,	Norwich,	1897
	S. Alpheus Gilbert, *C.*,	“	1897
	Donald G. Perkins,	“	1897
	Dr. Patrick Cassidy,	“	1898
	George C. Preston,	“	1898
	John F. Parker,	“	1898
	Burrell W. Hyde, *S.*,	“	1899
	M. M. Whittemore,	“	1899
	Rev. Richard H. Nelson,	“	1899
	N. L. Bishop, *Supt.*,	“	....
Norwich (West Chelsea† District),	J. H. Cranston,	“	1897
	H. Arthur Bill,	“	1897
	Howard L. Stanton, *A. V.*,	“	1897
	Frank H. Lovell, *S.*, *A. V.*,	“	1898
	Richard T. Bushnell,	“	1898
	William W. Collins, *A. V.*,	“	1898
	Henry G. Peck, *C.*,	“	1899
	Sanford A. Chapman,	“	1899
	Wm. R. Cowan, Jr.,	“	1899
Norwich (Falls District),†	Frank A. Robinson, *C.*, *A. V.*,	“	1897
	S. H. Thresher,	“	1897
	W. H. Callahan,	“	1898
	Geo. L. Yeomans,	“	1898
	John B. Doyle, *S.*,	“	1899
	Frank H. Allen,	“	1899
Old Lyme,	John Swaney,	Blackhall,	1897
	Rev. Arthur Shirley, *C.*,	Lyme,	1897
	Herbert M. Caulkins,	“	1897
	A. Henry Griswold, *S.*, *A. V.*,	Blackhall,	1898
	Ernest Chadwick,	Lyme,	1899
	John T. Morley,	“	1899
Old Saybrook,*	Frank J. Kirtland,	Saybrook,	1897
	Geo. W. Denison,	“	1897
	Franklin T. Bradley, *S.*, *A. V.*,	“	1897
	Robert B. Chalker,	“	1898
	David W. Clark,	“	1898

* Town School Committee. † Board of Education.

Towns.	Names.	P. O. Address.	Term Expires.
Old Saybrook,*	Frank S. Pratt,	Saybrook,	1898
	Joseph L. Hayden, *C.*,	"	1899
	Robt. Chapman,	"	1899
	Robt. Burns,	"	1899
Orange,	D. A. Kimberly, *A. V.*,	West Haven,	1897
	I. P. Treat, *A. V.*,	Orange,	1897
	Dr. J. F. Barnett, *S.*, *A. V.*,	West Haven,	1898
	John Macrille, *A. V.*,	"	1898
	W. J. Sheehan, *A. V.*,	"	1899
	Rev. N. J. Squires, *C.*, *A. V.*,	"	1899
Oxford,	Charles H. Lum, *A. V.*,	Stevenson,	1897
	Rev. Lewis F. Morris, *C.*, *A. V.*,	Oxford,	1897
	Edgar B. Harger, *A. V.*,	"	1898
	Elijah B. Treat, *A. V.*,	"	1898
	Orlando C. Osborn, *A. V.*,	"	1899
	Dr. Lewis Barnes, *S.*, *A. V.*,	"	1899
Plainfield,	Daniel H. Grover, *A. V.*,	Moosup,	1897
	Rev. Henry T. Arnold, *A. V.*,	Plainfield,	1897
	A. B. Mathewson,	Central Village,	1897
	Frederick T. Johnson,	Wauregan,	1898
	Waldo Tillinghast, *C.*, *A. V.*,	Plainfield,	1898
	Erastus Spaulding,	Moosup,	1898
	J. M. Wilcox,	Central Village,	1898
	J. J Kelley,	Moosup,	1898
	Rev. S. H. Fellows, *S.*, *A. V.*,	Wauregan,	1899
Plainville,*	Dr. T. G. Wright,	Plainville,	1897
	Mrs. Mary G. Clark,	"	1897
	Robert C. Usher, *C.*,	"	1898
	Rev. H. T. Walsh, *A. V.*,	"	1898
	Mrs. Alice Ryder,	"	1899
	J. S. Corban, *S.*, *A. V.*,	"	1899
Plymouth,	A. W. Welton,	Plymouth,	1897
	F. A. Scott,	Pequabuck,	1897
	Rev. William A. Gay,	Terryville,	1897
	W. W. Clemence, *C.*,	"	1898
	A. W. Granniss,	Pequabuck,	1898
	Henry E. Stoughton,	Plymouth,	1898
	R. J. Plumb,	Terryville,	1899
	T. F. Higgins,	"	1899
	A. S. Gaylord, *S.*, *A. V.*,	"	1899
Pomfret,	Mrs. Chas. W. Grosvenor,	Pomfret Center,	1897
	Mrs. A. C. S. Johnson,	Elliott,	1897
	Rev. Frederick Gardner,	Pomfret Center,	1897
	Rev. Winthrop B. Greene, *A. V.*,	" "	1897
	Albertus S Bruce, *C.*,	Pomfret Landing,	1898
	Walter Bryden,	Elliott,	1898
	Mrs. Mary I. Smith,	Pomfret Center,	1899
	George Allen,	Abington,	1899
	Miss Lena Averill, *S.*,	Pomfret Center,	1899
Portland,	E. F. Bigelow,	Portland,	1897
	H. E. Ellsworth,	"	1897
	R. H. Pascall,	"	1897
	Rev. W. W. Smith, *A. V.*,	Gildersleeve,	1898
	Rev. O. H. Raftery,	Portland,	1898
	Peter H Wilson,	"	1898
	Dr. C. A. Sears, *C.*, *A. V.*,	"	1899
	F. Gildersleeve,	Gildersleeve,	1899
	W. D. Penfield, *S.*, *A. V.*,	Cobalt,	1899
Preston,	John E. Woodward, *C.*,	Norwich,	1899
	George V. Shedd,	Preston City,	1899
	Allen B. Burdick, *S.*,	" "	1899
Prospect,*	Rev. Wm. H. Phipps, *S.*, *A. V.*,	Prospect,	1897
	Mrs. W. E. Clark,	"	1897
	D. M. Plumb, *A. V.*,	"	1898
	Edgar G. Wallace,	"	1898
	Halsey S. Clark, *C.*,	Union City,	1899
	George L Talmadge,	Prospect,	1899
Putnam,	Eugene A. Wheelock,	Putnam,	1897
	Lucius H. Fuller, *C.*,	"	1897
	Arthur D. McIntyre,	"	1897
	Dr. John B. Kent,	"	1897
	Eric H. Johnson, *S.*, *A. V.*,	"	1898
	Wm. R. Barber, *A. V.*,	"	1898
	George A. Hammond,	"	1899

* Town School Committee.

Towns.	Names.	P. O. Address.	Term Expires.
Putnam,	Moses G. Leonard,	Putnam,	1899
	Charles W. Bradway,	"	1899
Redding,	J. N. Nickerson,	Redding,	1897
	Moses B. Mills,	Georgetown,	1897
	J. F. Olmstead,	Redding,	1897
	Edward P. Shaw, *A. V.*,	Redding Ridge,	1898
	W. C. Sanford, *C.*, *A. V.*,	" "	1898
	Rev. O. U. Mohr, *A. V.*,	Georgetown,	1898
	Dr. Howard P. Mansfield,	"	1899
	Ebenezer Hill,	West Redding,	1899
	Mrs. C. C. Gorham, *S.*, *A. V.*,	Redding,	1899
Ridgefield,	Joel L. Rockwell,	Ridgefield,	1897
	Dr. Henry B. Savage,	"	1897
	Edward H. Smith, *C.*,	"	1897
	Rev. J. W. Ballantine, *A. V.*,	"	1898
	Edward J. Couch,	"	1898
	Melbert B. Cary,	"	1898
	Rev. Foster Ely, *S.*,	"	1899
	Rev. Edw. S. Sanborn,	Ridgebury,	1899
	Samuel Keeler,	Ridgefield,	1899
Rocky Hill,	Wm. G. Robbins, *S.*,	Rocky Hill,	1897
	James H. Warner,	"	1897
	Dr. F. L. Burr, *C.*, *A. V.*,	"	1898
	Cyprian H. Hart,	"	1898
	Frank E. Sherwood,	"	1899
	Charles A. Fowler,	"	1899
Roxbury,	Rev. W. D. Humphrey, *S.*, *A. V.*,	Roxbury,	1897
	Chas. W. Hodge,	Roxbury Station,	1897
	Geo. W. P. Leavenworth, *A. V.*,	Hotchkissville,	1898
	Edward W. Preston,	Roxbury,	1898
	E. W. Seeley, *C.*,	Roxbury,	1899
	Henry S. Hurlbut,	"	1899
Salem,	Rev. J. Ordway,	Salem,	1897
	Robert A. Bailey, *C.*,	"	1897
	Enoch B. Bulkeley,	Norwich,	1898
	Dr. C. F. Congdon, *S.*, *A. V.*,	Salem,	1898
	Henry E. Avery,	Gardner Lake,	1899
	Alvah Morgan,	Salem,	1899
Salisbury,	Rev. James H. George, *A. V.*,	Salisbury,	1897
	Dr. Wm. B. Bissell, *A. V.*,	Lakeville,	1897
	Rev. H. E. Tarrant, *A. V.*,	Lime Rock,	1898
	Elias F. Sanford, *S.*, *A. V.*,	Ore Hill,	1898
	George B. Burrall, *C.*, *A. V.*,	Lakeville,	1899
	Rev. Timothy F. Bannon,	"	1899
Saybrook,*	Fred. W. Williams,	Deep River,	1897
	Dr. Edwin Bidwell,	"	1897
	T. L. Harris,	"	1897
	Fred. L'Hommedieu,	"	1898
	Henry M. Snell,	"	1898
	Harvey J. Brooks, *S.*, *A. V.*,	"	1898
	Thomas L. Parker, *C.*, *A. V.*,	"	1899
	Chas. H. Wood,	"	1899
	Emory C. Parker,	"	1899
Scotland,*	A. M. Clark,	Scotland,	1897
	Charles Rider,	"	1897
	D. P. Walden,	"	1898
	Eugene Kimball,	"	1898
	John D. Moffit, *C.*,	"	1899
	Caleb Anthony, *S.*, *A. V.*,	"	1899
Seymour,*	L. A. Camp, *A. V.*,	Seymour,	1897
	H. S. Halligan,	"	1897
	John Early,	"	1897
	T. B. Beach, *S.*, *A. V.*,	"	1898
	James Swan,	"	1898
	Dr. Patrick F. Strapp,	"	1898
	T. L. James, *C.*,	"	1899
	F. A. Rugg,	"	1899
	Wolfrang Schaffer,	"	1899
Sharon,	Robert E. Goodwin,	Sharon,	1897
	Dwight N. Eggleston,	"	1897
	Charles C. Gordon,	"	1898
	Dr. B. W. Munson, *S.*, *A. V.*,	"	1898

* Town School Committee.

TOWNS.	NAMES.	P. O. Address.	Term Expires.
SHARON,	Herman C. Rowley, *C.*,	Sharon,	1899
	F. W. Dakin,	“	1899
SHERMAN,	John N. Woodruff, *S.*, *A.V.*,	Sherman,	1897
	Frank Hungerford, *C.*, *A. V.*	“	1898
	Ammi D. Giddings,	“	1898
	Mills Hungerford, *A. V.*,	“	1899
	W. C. Allen,	“	1899
	Daniel B. Mallory,	“	1899
SIMSBURY,	Mrs. Mary E. Holcomb,	Simsbury,	1897
	Rev. C. E. Stowe, *S.*,	“	1897
	Rev. J. B. McLean, *C.*, *A. V.*,	“	1898
	Dr. Charles M. Wooster, *A.V.*,	Tariffville,	1898
	Chas. B. Holcomb, *A. V.*,	“	1899
	Gavett B. Holcomb, *A. V.*,	Simsbury,	1899
SOMERS,	W. P. Fuller, *C.*,	Somers,	1897
	C. J. Stephenson,	“	1897
	A. E. Brainard,	Somersville,	1898
	L. A. Kibbe,	Somers,	1898
	M. F. Gowdy,	Somersville,	1899
	A. W. Kibbe, *S.*, *A. V.*,	Somers,	1899
SOUTHBURY,	Rev. David F. Pierce, *C.*,*A.V.*,	South Britain,	1898
	Birdsey Gilbert, *A. V.*,	“ “	1898
	G. A. Stiles, *S.*, *A. V.*,	Southbury,	1898
SOUTHINGTON,*	John J. Barnes, *C.*, *A. V.*,	Southington,	1897
	George S. Allen, *A. V.*,	Plantsville,	1897
	Lucretia A. Cummings, *A.V.*,	“	1897
	James H. Osborne, *S.*, *A.V.*,	Southington,	1898
	Dr. Edwin N. Walkley, *A. V.*,	“	1898
	Ella G. Brooks, *A. V.*,	“	1898
	Norman A. Barnes, *A.V.*,	“	1899
	Lydia E. Sloper, *A.V.*,	“	1899
	Ellen T. Lewis, *A.V.*,	Plantsville,	1899
SOUTH WINDSOR,	Seth Vinton, *C.*,	Buckland,	1897
	Frank Avery,	Manchester,	1897
	Olive A. Jones, *A. V.*,	South Windsor,	1898
	Ellen M. Foster, *A. V.*,	Wapping,	1898
	C. E. Alexander, *S.*,	Vinton's Mills,	1899
	L. B. Curtis,	South Windsor,	1899
SPRAGUE,	Ebenezer Allen, *C.*, *A. V.*,	Hanover,	1897
	Mrs. E. L. Smith, *A.V.*,	“	1897
	Fred'k Dobrow, *A. V.*,	Baltic,	1898
	James E. Vickridge, *S.*, *A. V.*,	Hanover,	1898
	Nathan Geer, *A. V.*,	Baltic,	1899
	H. H. Maynard, *A. V.*,	“	1899
STAFFORD,	Dr. F. L. Smith, *C.*, *A. V.*,	Stafford Springs,	1897
	W. H. Black, *A.V.*,	“ “	1897
	Dr. T. H. Rafftery, *A. V.*,	“ “	1898
	Rev. A. J. McLeod, *A. V.*,	“ “	1898
	Ralph Wiers, *A. V.*,	Crystal Lake,	1899
	J. R. Washburn, *S.*, *A. V.*,	West Stafford,	1899
STAMFORD,*	Schuyler Merritt, *C.*,	Stamford,	1897
	Nath'l R. Hart, *S.*,	“	1897
	Dr. Henry P. Geib,	“	1897
	Dr. Lewis R. Hurlburt,	“	1898
	Robert A. Fosdick,	“	1898
	Frank H. Baldwin,	“	1898
	Geo. H. Soule,	“	1899
	Chas. H. Peck,	“	1899
	Francis J Rogers,	“	1899
	Everett C. Willard, *Supt.*,	“	....
STERLING,	Claramon Hunt,	Sterling,	1897
	Henry D. Dixon,	North Sterling,	1897
	Benjamin S. Bliss,	Oneco,	1898
	Oliver A. Barr, *S.*, *A. V.*,	“	1898
	A. A. Stanton, *C.*,	Ekonk,	1899
	Orren W. Bates,	Oneco,	1899
STONINGTON,	Chas. H. Babcock, *C.*, *A. V.*,	Westerly, R. I.,	1899
	John T. Dougherty, *A. V.*,	“	1899
	Simeon Gallup, *S.*, *A. V.*,	Old Mystic,	1899
STRATFORD,	Wm. B. Cogswell, *C.*, *A. V.*,	Stratford,	1897
	H. J. Curtis, *A. V.*,	“	1897
	Chas. C. Wells, *A. V.*,	“	1898
	Geo. F. Lewis, *A. V.*,	“	1898

*Town School Committee.

Towns.	Names.	P. O. Address.	Term Expires.
STRATFORD,	A. Wilcoxson, *S.*, *A. V.*,	Stratford,	1899
	E. F. Hall, *A. V.*,	“	1899
SUFFIELD,	Rev. G. F. Genung, *C.*, *A. V.*,	Suffield,	1897
	Dr. Philo W. Street,	“	1897
	George F. Kendall,	“	1898
	Randall Salisbury,	West Suffield,	1898
	David W. Goodale,	Suffield,	1899
	Leverett N. Austin, *S.*,	“	1899
THOMASTON,*	Geo. A. Lemmon,	Thomaston,	1897
	Rev. M. J. Daly,	“	1897
	Fred I. Roberts, *S.*,	“	1897
	Geo. A. Stoughton, *A. V.*,	“	1898
	Dr. Ralph S. Goodwin,	“	1898
	William Trihey,	“	1898
	Chas. T. Higginbotham,	“	1899
	Frank H. Hotchkiss,	“	1899
	Rev. A. T. Parsons, *C.*, *A. V.*,	“	1899
THOMPSON,	E. Herbert Corttis, *C.*, *A. V.*,	North Grosvenordale,	1898
	Dr. Geo. V. Towne, *S.*, *A. V.*,	Thompson,	1898
	E. F. Thompson, *A. V.*,	North Grosvenordale,	1898
TOLLAND,	W. N. Simmons,	Tolland,	1897
	Frederick Meacham,	Rockville,	1897
	Edward E. Fuller,	Tolland,	1898
	David A. Brown, *S.*, *A. V.*,	“	1898
	Geo. P. Field, *C.*,	Rockville,	1899
	William D. Holman,	West Willington,	1899
TORRINGTON,*	Willard A. Cowles, *S.*,	Torrington,	1897
	James W. Hague,	“	1897
	John Workman,	“	1897
	Elisha J. Steele, *C.*,	“	1898
	James Alldis,	“	1898
	Edward S. Miner,	Burrville,	1898
	Edward J. Brennan,	Torrington,	1899
	Burr Lyon,	“	1899
	Giles H. Gaylord,	Torringford,	1899
	Edwin H. Forbes, *Supt.*,	Torrington,	....
TRUMBULL,*	Joseph A. Treadwell,	Long Hill,	1897
	F. S. Shelton,	“	1897
	Erwin S. Fairchild,	Nichols,	1897
	Charles A. Hall,	Long Hill,	1898
	Eli C. Burton,	Trumbull Centre,	1898
	Sterling H. Booth, *C.*,	“	1898
	Samuel Beach,	Long Hill,	1899
	Lewis Brinsmade,	Trumbull Centre,	1899
	N. B. Curtis, *S.*, *A. V.*,	Nichols,	1899
UNION,	Elam C. Booth, *C.*,	Stafford Springs,	1897
	Jonathan C. Upham, *S.*, *A. V.*,	Union,	1897
	S. W. Newell,	“	1898
	Francis L. Upham,	Staffordville,	1898
	Henry B. Booth,	“	1899
	Ernest H. Corbin,	Woodstock Valley,	1899
VERNON,	W. B. Foster, *S.*, *A. V.*,	Rockville,	1897
	A. M. Gibson,	“	1897
	A. R. Goodrich, *C.*,	Vernon,	1898
	E. G. Butler,	Rockville,	1898
	Morris Talcott,	Talcottville,	1899
	Dr. F. Walsh,	Rockville,	1899
VOLUNTOWN,	E. Byron Gallup, *C.*,	Ekonk,	1897
	Frank S. Bitgood,	Voluntown,	1897
	Warren R. Davis,	“	1898
	William P. White,	Pendleton Hill,	1898
	Leonard B. Kinney,	Voluntown,	1899
	John E. Tanner, *S.*, *A. V.*,	Campbell's Mills,	1899
WALLINGFORD,	Rev. J. E. Wildman, *C.*, *S.*, *A. V.*,	Wallingford,	1897
	Charles B. Yale,	“	1897
	L. M. Hubbard,	“	1898
	Rev. Hugh Mallon,	“	1898
	Rev. F. E. Marble,	“	1899
	J. B. Kendrick,	“	1899
WARREN,	Rev. A. Gardner, *C.*, *S.*, *A. V.*,	Warren,	1897
	Daniel Young,	“	1897
	Homer T. Sackett,	“	1898

*Town School Committee.

TOWNS.	NAMES.	P. O. Address.	Term Expires.
WARREN,	Joseph C. Breen,	Warren,	1898
	Noble B. Strong,	“	1899
WASHINGTON,*	Rev. Henry Upson, *A. V.*,	New Preston,	1897
	Chas. P. Lyman,	“	1897
	George T. Sperry,	Marbledale,	1898
	Wm. G. Brinsmade, *S.*, *A. V.*,	Washington,	1898
	Orestes Hickox, *C.*,	“	1899
	Elnathan Mitchell, *A. V.*,	“	1899
WATERBURY,	Geo. H. Cowell,	Waterbury,	1897
	J. H. Archambeault,	“ 264 So. Main,	1897
	John A. Osborn, *A. V.*,	Hopeville,	1897
	Homer F. Bassett, *C.*,	Waterbury, Cook st.,	1898
	Frank P. Brett,	“ 11 East Main,	1898
	Porter L. Wood, *A. V.*,	“ Brown's Build.,	1898
	W. F. Griggs,	“ Grand st.,	1899
	William E. Thorns,	“ Turner Build.,	1899
	F. F. Cook, *S.*,	“ 16 East Main,	1899
WATERBURY (Cent. Dist.),†	Rev. Hugh Treanor, *C.*,	Waterbury,	1897
	Dr. John F. Hayes,	“	1897
	Dr. A. A. Crane,	“	1897
	Dr. J. D. Freney,	“	1897
	Dr. J. J. McDonald,	“	1897
	A. J. Shipley,	“	1897
	M. L Sperry,	“	1897
	Thomas J. Moran, *Clerk*,	“	....
	M. S. Crosby, *Supt.*,	“	....
WATERFORD,	A. H. Lanphere, *C.*, *A. V.*,	Waterford,	1897
	W. C. Saunders, *A. V.*,	“	1897
	E. J Hempstead, *A. V.*,	New London,	1898
	J. E. Dart, *A. V.*,	“ “	1898
	R. B Wall, *A. V.*,	Waterford,	1899
	H. H. Gorton, *S.*, *A. V.*,	New London,	1899
WATERTOWN,	George F. Pritchard, *A. V.*,	Watertown,	1897
	T. P. Baldwin, *S.*, *A. V.*,	“	1897
	E. C. Marggraff, *A. V.*,	“	1898
	Rev. H. N. Cunn'ham, *C.*, *A. V.*,	“	1898
	Mrs. Ida M. T. Pegrum, *A. V.*,	“	1899
	Horace D. Taft,	“	1899
WESTBROOK,*	Henry W. Wright, *A. V.*,	Ivoryton,	1897
	Geo. O. Stannard,	Westbrook,	1897
	Chas. E. Chapman, *S.*, *A. V.*,	“	1897
	Chas. L. Clark,	“	1898
	Wm. A. Jones, *C.*,	“	1898
	Gilbert A. Post,	“	1898
	Albert W. Stokes,	“	1899
	Morris Crofut,	“	1899
	Horace E. Kelsey,	“	1899
WEST HARTFORD,*	C. Edward Beach,	Elmwood,	1897
	Mrs. Robert Way,	West Hartford,	1897
	Rev. T. M. Hodgdon,	“ “	1897
	Wm. H. Hall, *C.*,	“ “	1898
	W. W. Huntington,	Hartford,	1898
	Wilbur E. Goodwin,	Elmwood,	1898
	Frank H. Stadtmueller, *S.*,	“	1899
	H. C. Judd,	Hartford,	1899
	C. M. Williams,	“	1899
WESTON,	Ebenezer Fitch, *S.*, *A. V.*,	Westport,	1897
	Vanderbilt Godfrey,	Norwalk,	1897
	Iverson C. Fanton, *C.*,	Aspetuck,	1898
	Rev. Alex. Hamilton,	Lyons Plain,	1899
	Chas. R. Morehouse,	Weston,	1899
	J. Frank Ellwood,	Green's Farms,	1897
WESTPORT,	C. H. Kemper, Jr.,	Westport,	1897
	Rev. John H. Carroll,	Westport,	1898
	Wm. H. Saxton, *C.*, *A. V.*,	Saugatuck,	1898
	Rev. Jabez Backus, *S.*, *A. V.*,	Westport,	1899
	John McArdle,	“	1899
WETHERSFIELD,	George W. Harris,	Wethersfield,	1897
	Stephen M. Welles,	“	1897
	Luther W. Adams,	South Wethersfield,	1897
	Leslie E. Adams, *S.*,	“ “	1898

* Town School Committee.
† Board of Education.

TOWNS.	NAMES.	P. O. Address.	Term Expires.
WETHERSFIELD,	Edward D. Robbins,	Wethersfield,	1898
	Frederick W. Warner,	“	1898
	Thomas N. Griswold,	South Wethersfield,	1899
	Joseph O. Hurlbut, *C.*, *A. V.*,	Wethersfield,	1899
	Stephen Morgan,	“	1899
WILLINGTON,	Charles T. Preston, *C.*, *A. V.*,	Willington,	1897
	Rev. Chas. H. Brown, *S.*, *A. V.*,	“	1897
	Mrs. Esther B. Dimock, *A. V.*,	Moose Meadow,	1897
WILTON,	John B. Sturges,	Cannon's,	1897
	William J. Betts,	Wilton,	1897
	George William Ogden, *A. V.*,	“	1898
	Percy C. Ackerman, *S.*,	“	1898
	Horace S. Reynolds, *C.*,	North Wilton,	1899
	David S. Hurlbutt,	Cannon's,	1899
WINCHESTER,	Charles A. Bristol, *A. V.*,	Winsted,	1897
	Rev. Geo. F. Prentiss, *S.*, *A. V.*,	“	1897
	Mrs. M. H. Wetmore, *A. V.*,	Winchester,	1897
	Dr. William S. Hulbert, *A. V.*,	Winsted,	1898
	James P. Shelly, *C.*,	“	1899
	Miss B. W. Carpenter, *A. V.*,	West Winsted,	1899
WINDHAM,	Mrs. Emir W. Hamlin,	Willimantic,	1897
	Mrs. Abbie S. Utley,	“	1897
	Frank M. Wilson, *C.*,	“	1897
	Dr. John Weldon,	“	1897
	J. W. Hillhouse,	“	1898
	S. B. Harvey,	“	1898
	Dr. Frank E. Guild, *A. V.*,	Windham,	1898
	Janette L. Webb, *A. V.*,	Windham,	1899
	George L. Storrs, *S.*, *A. V.*,	Willimantic,	1899
WINDSOR,	John Kearney,	Poquonock,	1897
	V. Emma Thrall, *A. V.*,	Windsor,	1897
	Rev. F. W. Harriman, *C.*, *A. V.*,	“	1898
	William H. Harvey, *A. V.*,	“	1898
	Frederick N. Lamphear, *A. V.*,	Poquonock,	1899
	Rev. Roscoe Nelson, *S.*, *A. V.*,	Windsor,	1899
WINDSOR LOCKS,*	T. F. McCarty, *C.*,	Windsor Locks,	1897
	F. S. Bidwell,	“	1897
	F. L. Ashley, *S.*,	“	1898
	Dr. W. J. Coyle, *A. V.*,	“	1898
	Geo. M. Montgomery, *A. V.*,	“	1899
	Thos. Hancock,	“	1899
WOLCOTT,*	Henry B. Carter, *C.*,	Wolcott,	1897
	Rufus Norton,	“	1897
	Evelyn M. Upson,	“	1898
	John R. S Todd, *S.*, *A. V.*,	“	1898
	Frederic Upson,	“	1898
	Andrew J. Slater,	“	1898
WOODBRIDGE,*	William W. Peck,	Westville,	1897
	Stephen M. Peck,	“	1897
	Henry W. Chatfield,	Seymour,	1897
	Elmer E. Thomas,	Westville,	1898
	Albert L. Sperry,	“	1898
	William H. Warner, *S.*, *A. V.*,	“	1898
	Stiles C. Williams,	“	1899
	Henry E. Baldwin,	“	1899
	Charles Pierson Augur, *C.*,	“	1899
WOODBURY,	Rev. Joseph A. Freeman, *C.*,	Woodbury,	1897
	Edward S. Boyd,	“	1897
	Chas. T. Terrill,	North Woodbury,	1897
	A. D. Warner,	Woodbury,	1898
	David L. Somers,	North Woodbury,	1898
	W. J. Clark, *S.*, *A. V.*,	North Woodbury,	1898
	Rev. J. L. R. Wyckoff,	North Woodbury,	1899
	Michael F. Skelly,	Woodbury,	1899
	Mrs. Julia A. Strong,	North Woodbury,	1899
WOODSTOCK,	Dr. Joseph Spaulding,	Woodstock,	1897
	Rev. F. H. Viets,	North Woodstock,	1897
	Henry K. Safford,	West Woodstock,	1897
	Mrs. Frank Corbin,	“ “	1897
	John M. Paine,	East Woodstock,	1898
	Rev. P. S. Butler, *C.*, *A. V.*,	West Woodstock,	1898
	Henry W. Hibbard, *A. V.*,	Woodstock,	1899
	W. W. Webber, *S.*,	“	1899
	Vernon T. Wetherell, *A. V.*,	East Woodstock,	1899

*Town School Committee.

INDEX.

PAGE.
Administration, expense of 9
Agents, reports of 28–41
Andrews, E. C., report of 40–41
Apparatus, expense of 11
Arbor Day 94
Arithmetic, Normal school questions in 308
  state questions in 302
Attendance 16
  by counties 17
  graphic showing 18
  table showing enforcement of law concerning 294–296

Certificates, State teachers' 46
  holders of 46–50
Child labor 18–21, 297–299
Civil government, state questions in 305
Connecticut, state map of 320–330
Contributions, voluntary 7
County home, schools in 85–90
  Fairfield county 85
  Hartford county 89
  Middlesex county 87
  New London county 90

Deposit fund, town 131–141
District system

East Haven school building 95
English, teaching of, in high schools 337–344
Enumeration 15
  by counties 17
  graphic showing 18
Evening schools 58–61
Examinations, state 45
  Normal school — questions at 308–312
    arithmetic 308
    geography 311
    grammar 309–310
    history 311
  state teachers' questions at 301–307
    arithmetic 302
    civil government 305

Page.

Examinations, state teachers' questions in elementary science 303
  geography 303
  grammar 305, 306
  history 304
  physiology 307
  reading 302
  spelling 301
  vocal music 307
Expenditures 9–12
Expenses, running 10

Fairfield, County of — receipts by town, 1896 236
  summary, 1896 246
  expenses by town, 1896 237
  summary, 1896 246
  scholars by towns, 1896 250
  summary, 1896 258
  teachers by towns, 1896 259
  summary, 1896 264
  schools by towns, 1896 272
  summary, 1896 282
  schoolhouses by towns, 1896 273
  summary, 1896 282
  libraries by towns, 1896 273
  summary, 1896 282
  enumeration by districts, Oct., 1895 287
Fund, local 7
  school 6
  town deposit 6, 131–141

Geography, Normal school questions in 311
  state questions in 303
Graduates, normal, names of 70–73
Grammar, Normal school questions in 309
  state questions in 305

Hartford, County of — receipts by towns, 1896 230
  summary, 1896 246
  expenses by towns, 1896 231
  summary, 1896 246
  scholars by towns, 1896 247
  summary, 1896 255
  teachers by towns, 1896 256
  summary, 1896 264
  schools by towns, 1896 266
  summary, 1896 282
  schoolhouses by towns, 1896 267
  summary, 1896 282
  libraries by towns, 1896 267
  summary, 1896 282
  enumeration by districts, Oct., 1895 283

	Page.
High Schools	55–57
report on condition of	144–304*
History, Normal school questions in	311
state questions in	304
Improvements	11
Indebtedness	14
payments on	11
Interest	11
Investments, permanent	6–7
Kindergartens	61–63
Labor law, table showing enforcement of	297–299
Laws relating to education passed in 1895, general	313–317
special	317–319
Libraries, public	99–127
school	96–99
selection of books for	97–99
Libraries and apparatus	11
state appropriation for	293
Litchfield, County of — receipts by towns, 1896	240
summary, 1896	246
expenses by towns, 1896	241
summary, 1896	246
scholars by towns, 1896	252
summary, 1896	255
teachers by towns, 1896	261
summary, 1896	264
schools by towns, 1896	276
summary, 1896	282
schoolhouses by towns, 1896	277
summary, 1896	282
libraries by towns, 1896	277
summary, 1896	282
enumeration by districts, Oct., 1895	289
Meteorological observations in schools	331–336
Middlesex, County of — receipts by towns, 1896	242
summary, 1896	246
expenses by towns, 1896	243
summary, 1896	246
scholars by towns, 1896	253
summary, 1896	255
teachers by towns, 1896	262
summary, 1896	264
schools by towns, 1896	278
summary, 1896	282
schoolhouses by towns, 1896	279
summary, 1896	282

Page.
Middlesex, County of — libraries by towns, 1896 . . 279
summary, 1896 . . 282
enumeration by districts, Oct., 1895 . . 290
Morrill, A. B., report of 83, 84
Music, state questions in 307

New Haven, County of — receipts by towns, 1896 . . 232
summary, 1896 . . 246
expenses by towns, 1896 . . 233
summary, 1896 . . 246
scholars by towns, 1896 . . 248
summary, 1896 . . 255
teachers by towns, 1896 . . 257
summary, 1896 . . 264
schools by towns, 1896 . . 268
summary, 1896 . . 282
schoolhouses by towns, 1896 . . 269
summary, 1896 . . 282
libraries by towns, 1896 . . 269
summary, 1896 . . 282
enumeration by districts, Oct., 1895 . . 284
New London, County of — receipts by towns, 1896 . . 234
summary, 1896 . . 246
expenses by towns, 1896 . . 235
summary, 1896 . . 246
scholars by towns, 1896 . . 249
summary, 1896 . . 255
teachers by towns, 1896 . . 258
summary, 1896 . . 264
schools by towns, 1896 . . 270
summary, 1896 . . 282
schoolhouses by towns, 1896 . . 271
summary, 1896 . . 282
libraries by towns, 1896 . . 271
summary, 1896 . . 282
enumeration by districts, Oct., 1895 . . 285
Normal School, report of New Britain 74–77
Willimantic 77–83
New Haven 83, 84
Normal schools 64–84

Organization and administration of schools . . . 129

Phenix, G. P., report of 77–83
Physiology, state questions in 307
Potter, Giles, report of, concerning attendance and labor . 28–32
county homes . . 85–89
Private schools 90–94
Prosecutions 22–27

Reading, state questions in 302

Page.

Receipts 5–9
Registration 16
  by counties 17
  graphic showing 18

Schoolhouses and libraries 96
School visitors, list of 345–362
Schools, high 55–57, 144–304*
  evening 58–61
  normal 64–84
Science, elementary, state questions in 303
Simmons, W. S., report of 33–36
Spelling, state questions in, ... 301
Superintendents, list of 44
Supervision 44

Tax, state 7
  town 7
  district 7
Taxation 7
Teachers 41–54
  courses for 50
  meetings 45
Tolland, County of — receipts by towns, 1896 . . . 244
  summary, 1896 . . . 246
  expenses by towns, 1896 . . . 245
  summary, 1896 . . . 246
  scholars by towns, 1896 . . . 254
  summary, 1896 . . . 255
  teachers by towns, 1896 . . . 263
  summary, 1896 . . . 264
  schools by towns, 1896 . . . 280
  summary, 1896 . . . 282
  schoolhouses by towns, 1896 . . . 281
  summary, 1896 . . . 282
  libraries by towns, 1896 . . . 281
  summary, 1896 . . . 282
  enumeration by districts, Oct., 1895 . . . 291
Town deposit fund 131–141
Town system of schools 129

Wages, teachers' 43
Warren, M. A., report of 36–39
White, Marcus, report of 74–77
Willard, S. P., report of, concerning county homes . . 89–90
Windham, County of — receipts by towns, 1896 . . 238
  summary, 1896 . . 246
  expenses by towns, 1896 . . 239
  summary, 1896 . . 246
  scholars by towns, 1896 . . 251
  summary, 1896 . . 255

Page.
Windham, County of — teachers by towns, 1896 . . 260
  summary, 1896 . . 264
  schools by towns, 1896 . . 274
  summary, 1896 . . 282
  schoolhouses by towns, 1896 . . 275
  summary, 1896 . . 282
  libraries by towns, 1896 . . 275
  summary, 1896 . . 282
  enumeration by districts, Oct., 1895 . . 288
Women's voting 128, 129

Vocal music, state questions in 307

Yale University, courses for teachers 50

STATE OF CONNECTICUT

TWENTIETH ANNUAL REPORT

OF

The Connecticut Agricultural Experiment Station

For 1896

Printed by Order of the General Assembly

The publications of this Station are sent free to every citizen of Connecticut who applies for them. Address, The Conn. Agricultural Experiment Station, New Haven, Conn.

NEW HAVEN:
THE TUTTLE, MOREHOUSE & TAYLOR PRESS
1897

CORRECTIONS.

In the Sixteenth Report of this Station, for 1892, p. 155, is given a statement of the quantities of nitrogen and ash ingredients "in one ton of onions." This should read "in one-half ton of onions," or else the figures contained in the statement should be doubled.

In the Nineteenth Report of this Station, for 1895, p. 228, is given an analysis of Atlas Gluten Meal. This article is made by the Atlas Distilling Co., of Peoria, and not by the Chicago Sugar Refinery.

The guaranteed per cent. of available phosphoric acid in Chittenden's Potato Phosphate, No. 6477, is 6.0 per cent.; not 8.0 per cent. as stated on page 145 of the present Report.

CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

OFFICERS AND STAFF FOR 1896.

STATE BOARD OF CONTROL.

Ex-officio.

HIS EXCELLENCY O. VINCENT COFFIN, *President.*

Term expires,

Appointed by Connecticut State Agricultural Society:

HON. E. H. HYDE,* Stafford, *Vice-President.* July 1, 1897

Appointed by Board of Trustees of Wesleyan University:

PROF. W. O. ATWATER, Middletown. 1897

Appointed by Governor and Senate:

EDWIN HOYT, New Canaan. 1898
JAMES H. WEBB, Hamden. 1899

Executive Committee.

Appointed by Board of Agriculture:

T. S. GOLD, West Cornwall. 1898

Appointed by Governing Board of Sheffield Scientific School:

W. H. BREWER, New Haven, *Secretary and Treasurer.* 1899

Ex-officio.

S. W. JOHNSON, New Haven, *Director.*

STATION STAFF.

Chemists.

S. W. JOHNSON, *Director.*
E. H. JENKINS, PH.D., *Vice-Dir.*
A. L. WINTON, PH.B.
T. B. OSBORNE, PH.D.
A. W. OGDEN, PH.B.
G. F. CAMPBELL, PH.B.
W. L. MITCHELL, PH.B.

Mycologist.

WILLIAM C. STURGIS, PH.D.

Horticulturist.

W. E. BRITTON, B.S.

Grass Gardener.

JAMES B. OLCOTT, South Manchester.

Stenographer and Clerk.

MISS C. S. GREEN.

In charge of Buildings and Grounds.

CHARLES J. RICE.

Laboratory Helpers.

HUGO LANGE.
JULIUS KORN.

Sampling Agent.

C. L. BACKUS, Andover.

---

*Deceased. Succeeded by S. M. Wells, Wethersfield.

Notice as to Bulletins.

The Bulletins of this Station are mailed free to citizens of Connecticut who apply for them, and to others as far as the limited editions permit.

Applications should be renewed annually before January 1st.

The matter of all the Bulletins of this Station, in so far as it is new or of permanent value, will be made part of the Annual Report of the Station Staff.

All Bulletins earlier than No. 71 and Nos. 83, 93, 101, 102 and 118 are exhausted and cannot be supplied.

Notice as to Supply of Station Reports.

The Station has no supply of its Annual Reports for the years 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1887 and 1891.

The Annual Report of this Station, printed at State expense, is by law limited to an edition of 12,000 copies, of which 5,000 copies are bound with the annual Report of the Connecticut State Board of Agriculture, and distributed by the Secretary of the Board, T. S. Gold, West Cornwall, Conn.

After exchanging with other Experiment Stations and Agricultural Journals, the Reports remaining at the disposal of the Station will be sent to citizens of Connecticut who shall seasonably apply for them, and to others as long as the supply lasts.

ANNOUNCEMENT.

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION was established in accordance with an Act of the General Assembly approved March 21, 1877, "for the purpose of promoting Agriculture by scientific investigation and experiment."

The Station is prepared to analyze and test fertilizers, cattle-food, seeds, milk, and other agricultural materials and products, to identify grasses, weeds, moulds, blights, mildews, useful or injurious insects, etc., and to give information on various subjects of Agricultural Science, for the use and advantage of the citizens of Connecticut.

The Station does not undertake sanitary analyses of water.

The Station makes analyses of Fertilizers, Seed-Tests, etc., for the citizens of Connecticut, without charge, provided—

1. That the results are of use to the public and are free to publish.
2. That the samples are taken from stock now in the market, and in accordance with the Station "Instructions for Sampling."
3. That the samples are fully described and retail prices given on the Station "Forms for Description."

The officers of the Station will take pains to obtain for analysis samples of all the commercial fertilizers sold in Connecticut; but the organized coöperation of farmers is essential for the full and timely protection of their interests. Granges, Farmers' Clubs, and like associations can efficiently work with the Station for this purpose, by sending in duly authenticated samples early during each season of trade.

☞ By a recent Act of Legislature it is made the business of this Station to examine articles of food and drink on sale in Connecticut, with reference to their adulterations.

Here it may be stated that, *until further notice,* the Station will examine only such samples of food and drink as are collected by its agents or such as shall be taken under its advice, and by the methods it shall prescribe or approve.

All other work proper to the Experiment Station that can be used for the public benefit will be done without charge. Work for the private use of individuals is charged for at moderate rates. The Station undertakes no work the results of which are not at its disposal to use or publish, if deemed advisable for the public good.

Results of analysis or investigation that are of immediate general interest are published in Bulletins, copies of which are sent to each Post Office in the State, and to every citizen of the State who applies for them. The results of all the work of the Station are summed up in the Annual Reports made to the Governor.

It is the wish of the Board of Control to make the Station as widely useful as its resources will admit. Every Connecticut citizen who is concerned in agriculture, whether farmer, manufacturer, or dealer, has the right to apply to the Station for any assistance that comes within its province to render, and the Station will respond to all applications as far as lies in its power.

☞ Instructions and Forms for taking samples, and Terms for testing Fertilizers, Seeds, etc., for private parties sent on application.

☞ Parcels by Express, to receive attention, should be *prepaid.*

☞ Letters sent to individual officers are liable to remain unanswered in case the officer addressed is absent. All communications therefore should be directed simply to the

AGRICULTURAL EXPERIMENT STATION,
NEW HAVEN, CONN.

and all remittances should be made payable to the undersigned.

☞ Station Grounds, Laboratories and Office are on Huntington Street, five minutes walk west from Whitney Avenue and $1\frac{5}{8}$ miles north of City Hall.

☞ Huntington Street may be reached by Whitney Avenue Electric Cars, which leave the corner of Chapel and Church Streets five times hourly, viz: on the striking of the clock and at intervals of twelve minutes thereafter.

☞ The Station may also be reached by taking Winchester Avenue Electric Cars, going north, which pass the Union R. R. Depot, and also start from corner Chapel and Church Streets, at intervals of sixteen minutes. Get off at Harriet street, whence five minutes walk eastward, crossing Prospect Street, and entering Huntington Street, brings to the Station.

☞ The Station has Telephone connection and may be spoken from the Central Telephone Office, 118 Court Street, or from Peck & Bishop's Office in Union R. R. Depot, New Haven.

☞ The Grass Garden, in charge of Mr. James B. Olcott, is near South Manchester, two minutes walk from the line of the Manchester Electric Cars, leaving City Hall Square, State Street, Hartford, every half hour. Conductors on this line can direct visitors to the Garden.

S. W. JOHNSON, *Director.*

CONTENTS.

Page
Corrections ii
Officers and Staff of the Station iii
Notices as to Bulletins and Reports iv
Announcement v
Table of Contents vii
Report of the Treasurer xi
Report of the Board of Control xiii
Report of Work by Station Staff 1
  Report on Food Products 1
    Act Regulating Manufacture and Sale of Food Products 2
    Maple Syrup and Maple Sugar 7
    Sugars 13
    Syrup 13
    Honey 15
    Lard 22
    Pepper 32
    Mustard 44
    Cheese 49
    Coffee 52
    Milk 63
    Cream of Tartar 66
    Cereal Foods 68
    Summary 69
    Law regarding Foods and Drugs 70
      Butter 70
      Milk 73
      Molasses 74
      Candy 75
      Vinegar 76
      Spirituous and Intoxicating Liquors 78
      Drugs and Medicines 78
      Food 78
Fertilizers 81
  The Connecticut Fertilizer Law 81
  Observance of the Fertilizer Law 85
  Sampling and Collection of Fertilizers 92
  Analysis of Fertilizers 93

Page

Fertilizers :—
    Explanations concerning Analysis and Valuation 94
    Classification of Fertilizers Analyzed 100
    Description and Analyses of Fertilizers 101
        Raw Materials chiefly valuable for Nitrogen 101
            Nitrate of Soda 101
            Sulphate of Ammonia 103
            Dried Blood 103
            Ground Horn and Hoof 103
            Preparations of Leather 103
            Cotton Seed Meal 103
            Linseed Meal 107
            Castor Pomace 108
            Mustard Seed Cake 109
            Preparations of Leather 109
        Raw Materials, chiefly valuable for Phosphoric Acid 110
            Odorless Phosphate 110
            Dissolved Bone Black 110
            Dissolved Rock Phosphate 110
        Raw Materials, chiefly valuable for Potash 112
            High Grade Sulphate of Potash 112
            Double Sulphate of Potash 112
            Phosphate of Potash 113
            Muriate of Potash 113
            Potash Salts 113
        Raw Materials containing Nitrogen and Phosphoric Acid 115
            Bone Manures 115
            Burned Bone 118
            Tankage 118
            Dry Ground Fish 120
        Mixed Fertilizers 122
            Bone and Potash 122
            Nitrogenous Superphosphates and Guanos 123
                Sampled by Station Agents 123
                Sampled by Manufacturers and Consumers 139
            Special Manures 142
                Sampled by Station Agents 142
                Sampled by Manufacturers and Consumers 143
            Home Mixtures 154
        Miscellaneous Fertilizers and Manures 154
            Cotton Hull Ashes 154
            Wood Ashes 156
            Lime Kiln Ashes 160
            Ground Tobacco Stems and Tobacco Dust 161
            Swamp Muck 162
Review of the Fertilizer Market 163
The Proper use of Tables of Analyses of Fertilizers and Fertilizer Chemicals 169

Page

Experiments on Availability of Fertilizer-Nitrogen 178
  On Availability of Organic and Nitric Nitrogen, Maize Cultures .. 178
  Comparison of Nitrogen Availability determined by Vegetation Experiments and Nitrogen-Solubility in Reagents 191
  On Availability of Nitrogen in Bone 197
On the Use of Commercial Fertilizers for Forcing-House Crops 205
  Experiments with Tomatoes 205
  Experiments with Radishes 222
  Experiments with Carnations 225
  Experiments with Cucumbers 226
New Forcing-House 229
Blight, Burn or Scald of Tomato Plants 232
Insect Notes 234
Experiments on the Prevention of Potato Scab 246
On the Susceptibility of Various Root Crops to Potato Scab 263
On a Leaf-Blight of Melons 267
On the Probable Winter Condition of the Fungus of Peach Scab 269
On a Destructive Fungous Disease of Tobacco in South Carolina 273
Note on the so-called "Shelling" of Grapes 278
Miscellaneous Notes on Fungous and Insect Pests 281
Experiments in Growing Tobacco with Different Fertilizers, Final Report on Fermented Crops of 1895 285
Experiments in Growing Tobacco with Different Fertilizers, Season of 1896 302
Some Results of Experiments with Tobacco Fertilizers for the Five Years, 1892-1896 310
The Effects of Fertilizers on the Composition of Wrapper Leaf Tobacco 332
Amount of Nitrogen, Phosphoric Acid and Potash in Peas and Beans . 334
Observations on the Growth of Maize Continuously on the same Land for Nine Years 335
The Proteids of Lupin Seeds 342
  Yellow Lupin 343
  Blue Lupin 362
Effects of Minute Quantities of Acid on the Solubility of Globulin in Salt Solutions 369
The Proteids of the Sunflower Seed 374
The Proteids of the Cow Pea 380
Proteid of the White Podded Adzuki Bean 387
The Amount and Properties of the Proteids of the Maize Kernel 391
Index 398

REPORT OF THE TREASURER.

Wm. H. Brewer, in account with The Connecticut Agricultural Experiment Station for the fiscal year ending September 30th, 1896.

Receipts.

	For 9 months.	For 3 months.	Total.
State Comptroller, Agr. Appr.	$7,500.00	$2,500.00	$10,000.00
" " Food Appr.	1,875.00	625.00	2,500.00
United States Appr.	5,625.00	1,875.00	7,500.00
Analysis Fees due last year	170.00	----------	170.00
" " this year	4,995.00	150.00	5,145.00
Damages from new layout of streets	400.00	----------	400.00
Miscellaneous	70.72	----------	70.72
	$20,635.72	$5,150.00	$25,785.72

Expenditures.

	For 9 months.	For 3 months.	Total.
Salaries, State account	$6,345.83	$2,187.51	$8,533.34
" U. S. account	5,625.00	1,875.00	7,500.00
Labor	1,036.53	50.80	1,087.33
Publications	164.06	190.80	354.86
Postage	78.61	53.60	132.21
Stationery	163.59	26.80	190.39
Freight and Express	92.43	2.70	95.13
Coal	65.10	702.00	767.10
Gas	264.10	42.74	306.84
Water	147.00	----------	147.00
Chemicals and Laboratory Supplies	977.09	69.74	1,046.83
Supplies—Agr., Hort., Bot., etc.	321.64	19.10	340.74
Fertilizers	153.51	2.79	156.30
Feeding Stuffs	73.46	16.04	89.50
Library	452.44	33.68	486.12
Tools and Machinery	33.94	19.20	53.14
Furniture and Fixtures	11.35	----------	11.35
Scientific Apparatus	290.55	5.40	295.95
Travelling, by the Board	8.30	17.09	25.39
" " Staff	170.43	15.50	185.93
Telephone	162.35	----------	162.35
Tobacco Exper.	79.65	12.50	92.15
Grass Exper.	1,000.00	----------	1,000.00
Field Exper.	58.50	----------	58.50
Fertilizer Sampling	448.98	5.45	454.43
Food Sampling	308.06	47.07	355.13
Bank Discount	19.03	----------	19.03
Insurance	269.98	----------	269.98
New lay-out of streets	42.88	25.20	68.08
Unclassified Sundries	26.84	----------	26.84
New Buildings	390.82	----------	390.82
Betterments	327.00	48.95	375.95
Repairs	165.83	121.18	287.01
Total Expenditures	$19,774.88	$5,590.84	$25,365.72
Balance to New Acct.			420.00
			$25,785.72

The accounts are rendered for periods of nine and three months, as were those of the Report of last year, to facilitate the comparison and correlation of the two Reports rendered to the State and the United States for their respective fiscal years. The classification of expenditures is, as far as is practicable, in accordance with that required to be given for the expenditures of the funds received from the United States, and recommended by the U. S. Dept. of Agriculture for the general use of all the stations in the country.

The new lay-out of streets has necessitated very considerable changes, costing much more than the $400 awarded as damages. Some of these changes, however, are of the nature of betterments and permanent improvements. Of the $420 balance carried to the new account, $\$331\frac{92}{100}$ are from this award and will pay probably about half of the amount required for the remaining changes that are necessary.

WM. H. BREWER, *Treasurer.*

REPORT OF THE BOARD OF CONTROL.

To His Excellency, O. Vincent Coffin, Governor of Connecticut:

The Board of Control of the Connecticut Agricultural Experiment Station herewith submits its report for the year ending October 31st, 1896.

EXAMINATION OF FOOD PRODUCTS.

Eleven hundred and thirty-two samples of Food Products have been purchased by agents of this Station, who have visited all sections of the State for this purpose. The samples thus collected have been suitably examined with reference to the presence of adulterants.

The necessary microscopic work has been entirely done by Mr. Winton, and the chemical work by Messrs. Winton, Ogden and Mitchell.

The first publication of this Station on Foods was issued in July, as Bulletin No. 123, and covers seventy-nine pages, giving a detailed account of the examination of eight hundred and forty-eight articles of food, thirty per cent. of which were adulterated.

As provided by statute, this will form a part of the forthcoming twentieth report of this Station.

WORK FOR THE DAIRY COMMISSIONER.

All the chemical work required by the Dairy Commissioner has been done in the laboratory of this Station, including examinations of nine samples of butter, fifteen of molasses and fifty-four of vinegar.

THE FERTILIZER CONTROL.

During the months of April, May and June, members of the Station staff and Mr. C. L. Backus, of Andover, sampling agent of this Station, visited ninety-four towns and villages of this State and drew five hundred and eighty-nine samples of commercial fertilizers. These represented nearly all of the two hundred and fifty-five brands of these goods which have been entered for sale within the State.

Analyses of all these brands have been made in the chemical laboratory, by Messrs. Winton, Ogden and Mitchell, with the assistance of Mr. Lange. A manuscript copy of each analysis has been sent to the manufacturer and to each dealer from whom a sample of the goods was drawn.

The results of these fertilizer analyses have been tabulated and are ready for publication.

THE WORK OF THE CHEMICAL LABORATORY.

Besides the examination of Food Products, the work for the Dairy Commissioner and the analyses of the fertilizers just referred to, Messrs. Winton, Ogden and Mitchell have analyzed two hundred and eleven samples of fertilizers and manurial waste products, making the total number of fertilizer analyses four hundred and sixty-six.

In connection with vegetation experiments, the chemists have analyzed two hundred and seventeen crops of maize and forty-eight of oats, all grown in pots, and two crops of cucumbers, two of carnations, fifty-one of tomato vines and roots, four of tomato fruit, fourteen of lettuce and two of radishes, which were raised in the forcing-houses.

The chemists have also analyzed eight samples of maize and maize stover, and one hundred and sixteen of leaf tobacco, coming from the field experiments carried on by the Station.

Two hundred and eleven samples of vegetable seeds have been tested with regard to their vitality, in the interests of seedsmen and purchasers.

A very considerable number of determinations have also been made in testing analytical methods, chiefly concerning the determination of potash.

STUDY OF PLANT PROTEIDS.

During the year the work begun in 1895 on the proteids of leguminous seeds has been diligently prosecuted. The seeds studied have been yellow lupin, blue lupin, horse bean, lentil, yellow soy bean, Kiyusuki daidzu, soy bean, cow pea and white podded adzuki bean. Further study has been made of the maize kernel including determinations of the quantities of the several proteids in yellow corn.

THE WORK OF THE MYCOLOGIST.

The work of Dr. Sturgis during the past year is briefly as follows:

1. A continuation of the experiments of 1894 and 1895, upon the use of fungicides under various conditions, for the prevention of potato scab. This general subject was studied in the light of three separate experiments, and included investigations upon the danger to the crop arising from the use of scabby seed as compared with clean seed, infested land as compared with clean land, and barn-yard manure as compared with fertilizer chemicals. The fungicides tested were corrosive sublimate, sulphur and a new material called Lysol, highly recommended as a fungicide and insecticide by French and German investigators.

2. The susceptibility to potato scab of eight common root-crops and the application of fungicides to the soil by way of preventive treatment.
3. A test of the fungicidal value of dry Bordeaux mixture as compared with the usual liquid form.
4. Study of the supposed winter condition of the shot-hole fungus of peach, plum and apricot.
5. Study of a mildew attacking rose-bushes and distinct from the form common on rose leaves.
6. An investigation of the causes of the so-called "shelling" of grapes, and plans for treatment.
7. An investigation of a new and serious disease attacking growing tobacco in the South, and liable to occur in the North.
8. Continued work upon the San José Scale.

Horticultural Work.

Dr. Jenkins and Mr. Britton, with the coöperation of the chemical department, have continued the study of the relative availability of organic nitrogen in various forms, by vegetation experiments with maize and oats. Eighty-six experiments with maize grown in pots, charged with an artificial soil, and eighty-three in similar pots, charged with natural soils, have been carried out during the summer in a vegetation house built for the purpose.

The comparative availability of nitrogen in bone of different degrees of fineness, has been studied by forty-eight experiments with maize grown in cylinders sunk in the ground.

During the winter the fertilizer requirements of tomatoes, radishes and carnations were studied in the forcing-houses, the plants being grown for the purpose both in rich garden soil and also in a mixture of peat and anthracite coal ashes, to which fertilizer chemicals in the desired quantity were added.

Experiments have also been begun by Mr. Britton on the grafting of hickory trees.

Field Experiments.

Under the supervision of Dr. Jenkins, the extensive experiment on the effect of fertilizers upon quality and quantity of the tobacco crop, and the experiments noticed in our former reports on the growth of maize continuously on the same land, have been again repeated.

Three experiments on the fertilization of peach orchards have been undertaken, chiefly to study the effect of different amounts of potash salts and of the forms of nitrogen best adapted to the crop.

The Grass Garden.

Mr. J. B. Olcott has continued the study of native and foreign turf-making grasses in the grass garden at South Manchester, and during the year has visited the Sandwich Islands and Australia for the purpose of studying and collecting turf grasses. Turf gathered in these countries has been added to the large number of varieties already in the grass garden collected in England, France, Denmark and Austria, as well as in all parts of the United States.

Station Publications.

The Nineteenth Report of this Station for the year 1895, a volume of three hundred and twenty pages, has been issued in an edition of twelve thousand copies and the seven thousand copies at the disposal of this Station, after satisfying our exchanges, have been distributed among the farmers of Connecticut. Less than fifty copies remain in our hands.

Bulletin No. 122, issued in May last, in an edition of four thousand copies, on cost of nitrogen, phosphoric acid and potash in Connecticut, contained sixteen pages.

Bulletin No. 123, issued in July, in an edition of five thousand copies, seventy-five pages, contained the first report of this Station on the Examination of Food Products.

The substance of these Bulletins will be reproduced in the Twentieth Report for 1896, now in course of preparation, which will contain a full account of all the work of the Station Staff during the State fiscal year.

Attendance at Farm Institutes and other Farmers' Meetings.

In addition to the usual attendance at Farm Institutes and in response to requests, members of the Station Staff have attended a considerable number of meetings of farmers during the year, and read papers or made addresses.

Correspondence.

During the year, nineteen hundred and thirty letters have been written by the Station Staff and eight hundred and fourteen manuscript reports of fertilizer and other analyses have been made.

Meetings of the Board.

During the year ending October 31st, the Board of Control has held three meetings.

All of which is respectfully submitted.

(Signed) WILLIAM H. BREWER, *Secretary.*

Nov. 1st, 1896.

REPORT ON FOOD PRODUCTS.

To his Excellency, O. Vincent Coffin, Governor of Connecticut:

As required by statute, I herewith submit the first Report of this Station upon Adulterated Food Products.

Very respectfully yours,

S. W. Johnson, *Director.*

The Conn. Agricultural Experiment Station,
New Haven, July 15th, 1896.

CONTENTS.

	Page
The Pure Food Law	2
Collection of Samples	5
Maple Syrup and Maple Sugar	7
Sugars	13
Syrup	13
Honey	15
Lard	22
Pepper	32
Mustard	44
Cheese	49
Coffee	52
Milk	63
Cream of Tartar	66
Cereal Foods	68
Summary	69
Connecticut Laws regarding Adulteration of Food and Drugs	70

REPORT ON FOOD PRODUCTS.

The General Assembly of this State, at the January Session, 1895, passed an act regulating the manufacture and sale of food products; which was approved June 26th, 1895, and went into effect on August 1st of that year.

The text of the law is as follows:—

CHAPTER CCXXXV.

PUBLIC ACTS, JANUARY SESSION, 1895.

An Act regulating the Manufacture and Sale of Food Products.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Manufacture or sale of misbranded or adulterated food.

SECTION 1. It shall be unlawful for any person, persons, or corporation within this state to manufacture for sale, offer, or expose for sale, have in his or their possession for sale, or to sell, any article of food which is adulterated or misbranded within the meaning of this act.

Term food defined. Term misbranded defined.

SEC. 2. The term food, as used in this act, shall include every article used for food or drink by man, horses, or cattle. The term misbranded, as used in this act, shall include every article of food and every article which enters into the composition of food, the package or label of which shall bear any statement purporting to name any ingredient or substance as not being contained in such article, which statement shall be untrue in any particular; or any statement purporting to name the substance or substances of which such article is made, which statement shall not give fully the names of all substances contained in such article in any measurable quantity.

When an article shall be deemed to be adulterated.

SEC. 3. For the purposes of this act, an article shall be deemed adulterated:

First, if any substance or substances be mixed or packed with it so as to reduce or lower or injuriously affect its quality or strength;

Second, if any inferior substance or substances be substituted wholly or in part for the article;

Third, if any valuable constituent of the article has been wholly or in part abstracted;

Fourth, if it be an imitation of or sold under the name of another article;

Fifth, if it is colored, coated, polished, or powdered whereby damage is concealed, or if it is made to appear better or of greater value than it is;

Sixth, if it contains poisonous ingredients which may render such article injurious to the health of a party consuming it, or if it contain any antiseptic or preservative not evident and not known to the purchaser or consumer;

Seventh, if it consists, in whole or in part, of a diseased, filthy, decomposed, or putrid substance, either animal or vegetable, unfit for food, whether manufactured or not, or if it is in any part the product of a diseased animal, or of any animal that has died otherwise than by slaughter;

Provided, that an article of food product shall not be deemed adulterated or misbranded within the meaning of this act in the following cases:

(*a*) In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food under their own distinctive names, and not included in definition fourth of this section;

(*b*) In the case of articles labeled, branded, or tagged, so as plainly or correctly to show that they are mixtures, compounds, combinations, or blends;

(*c*) When any matter or ingredient is added to a food because the same is required for the protection or preparation thereof as an article of commerce in a fit state for carriage or consumption and not fraudulently to increase the bulk, weight, or measure of the food or to conceal the inferior quality thereof;

(*d*) When a food is unavoidably mixed with some extraneous matter in the process of collection or preparation.

Connecticut Agricultural Experiment Station to make analyses.

Sec. 4. The Connecticut Agricultural Experiment Station shall make analyses of food products on sale in Connecticut suspected of being adulterated, at such times and places and to such extent as it may determine, and may appoint such agent or agents as it deems necessary; who shall have free access, at all reasonable hours, for the purpose of examining, into any place wherein it is suspected any article of food adulterated with any deleterious or foreign ingredient or ingredients exists, and such agent or agents upon tendering the market price of said article may take from any person, firm, or corporation samples of any article suspected of being adulterated as aforesaid, and the said station may adopt or fix standards of purity, quality, or strength when such standards are not specified or fixed by statute.

Notice to prosecuting officers.

SEC. 5. Whenever said station shall find by its analysis that adulterated food products have been on sale in the state, it shall forthwith transmit the facts so found to a grand juror or prosecuting attorney of the town in which said adulterated food product was found.

Report.

SEC. 6. The said station shall make an annual report to the governor upon adulterated food products, in addition to the reports required by law, which shall not exceed one hundred and fifty pages, and said report may be included in the report which said station is already authorized by law to make, and such annual reports shall be submitted to the general assembly at its regular session.

Appropriation.

SEC. 7. To carry out the provisions of this act, the additional sum of twenty-five hundred dollars is hereby annually appropriated to said Connecticut Agricultural Experiment Station, which sum shall be paid in equal quarterly installments to the treasurer of the board of control of said station, upon the order of the comptroller, who is hereby directed to draw his order for the same.

Penalty.

SEC. 8. Any person who, either by himself, his agent, or attorney, with the intent that the same may be sold as unadulterated, adulterates any food products for man, or horses, or cattle, or knowing that the same has been adulterated, offers for sale or sells the same as unadulterated, or without disclosing or informing the purchaser that the same has been adulterated, shall be fined not more than five hundred dollars, or imprisoned not more than one year.

Action not to be maintained on illegal sale.

SEC. 9. No action shall be maintained in any court in this state on account of any sale or other contract made in violation of this act.

SEC. 10. All acts and parts of acts inconsistent herewith are hereby repealed.

Approved, June 26th, 1895.

The fourth, fifth and sixth sections of this act lay certain duties upon this Station as follows:

1st. To make analyses of food products suspected of being adulterated.

2d. Whenever it shall find by its analysis that adulterated food products have been on sale, it shall forthwith transmit the facts so found to a prosecuting officer in the town where the adulterated food product was found.

3d. The Station shall make an annual report.

The law also provides that the Station may adopt or fix standards of purity, quality, or strength, when such standards are not specified or fixed by statute.

All articles used as food or drink by men, horses or cattle are included under the provisions of the law and are subject to the inspection and investigation of the Station. It is obvious that because of this wide scope of the law, and also because of the limited appropriation made for the work, it is quite impossible that the whole field should be covered in any one year.

That due diligence has been shown in examining food products during the twelve months covered by this report is shown by the work described on the following pages.

Authorized agents of this Station have visited forty cities and villages of Connecticut for the purpose of purchasing articles of food liable to adulteration.

These places are distributed as follows:

Litchfield County	3	places.
Hartford "	9	"
Tolland "	1	"
Windham "	5	"
New London "	5	"
Middlesex "	1	"
New Haven "	10	"
Fairfield "	6	"
	40	"

There have thus been secured 934 samples of food products of the following kinds:

Maple Syrup	72	samples.
Maple Sugar	7	"
Syrup	4	"
Cane Sugar	16	"

Comb Honey	12	samples.
Strained Honey	48	"
Lard and Lard substitutes	162	"
Pepper	114	"
Mustard	74	"
Cream of Tartar	103	"
Cereal Foods	9	"
Coffee	124	"
Milk	105	"
Cheese	72	"
Miscellaneous	25	"
	947	"

In collecting these samples no effort has been made to select places in which it might be supposed that adulterated goods would be most abundant, but it was rather sought to get as many different brands of each article as was possible. To this end the agents purchased from "fancy" groceries, as well as from the cheaper places which supply the poorer part of the population.

The State having already specially provided for the inspection of butter, molasses and vinegar by a dairy commissioner and his deputy, inspection of these three food products by the Station is uncalled for.

It should be said, however, that all samples drawn by the dairy commissioner or his deputy are referred by them to this Station for examination and report.

The examination of the samples bought by Station agents has been entirely done by Messrs. Winton, Ogden and Mitchell, as will be seen from their papers on the following pages.

In every case where certain proof of adulteration was found, the facts, as required by the law, have been forthwith transmitted to a grand juror or other prosecuting officer of the town or borough where the adulterated food products were sold.

The duties of this Station end here. In order to prosecute successfully it is necessary for the State not only to prove the sale of adulterated food products, but also to prove that the seller knew that the articles sold were adulterated.

MAPLE SYRUP AND MAPLE SUGAR.

By A. W. Ogden.

Maple syrup, obtained by evaporating the sap of the sugar maple, contains essentially the same sugars that exist in sugar made from sugar cane and beet root, but it is specially prized for its peculiar flavor. This flavor is said to be more or less successfully imitated, and, according to popular belief, it is quite possible to prepare, from the ordinary white or brown sugar of the stores, a syrup or a sugar which cannot be certainly distinguished from genuine maple syrup or maple sugar.

It is probable that genuine maple syrup or sugar may be melted with water and a large proportion of ordinary sugar to make a mixture which has enough maple flavor to be in demand and to be extensively sold as maple sugar or maple syrup.

In Table I, page 9, are given analyses of 61 samples of "maple syrup," bought by Station agents in 22 different cities and towns of this State.

Of most of these it is impossible to say whether or not they are genuine and unadulterated.

But the last eight samples in the table of analyses are certainly adulterated and consist wholly or in part of glucose syrup. The five samples which immediately precede in the table those marked adulterated, and which are numbered 5094, 5093, 5461, 5397 and 5043 contain some substance which has a strong right-handed polarization and is not "inverted" by the action of acids. Such a substance is not known in pure maple syrup or sugar, but a mixture of syrup with a moderate quantity of glucose would give the polarization observed in these samples.

Method of Testing Sugars and Syrups.

Sugar, syrup and honey are tested generally by the polariscope, other tests being made in special cases.

In our work one-half the normal quantity for polariscopic test* was dissolved in water and clarified when necessary with 1^{cc} each of alum cream and basic lead acetate solution. After making up the volume to 100^{cc} and filtering, the solution was polarized in a 200^{mm} tube. 50^{cc} of the solution were treated with 5^{cc} of strong hydrochloric acid, heated at 68° to 70° C. for ten minutes and polarized a second time, after inversion.

The results in the table are calculated in all cases to the normal quantity.

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* 13.024 grams.

Explanations of the Table of Analyses.

The last column in Table I gives the per cent. of cane sugar deduced from the polarizations. This ranges in the "maple syrups" from 47 per cent. in No. 5371 to 66 per cent. in No. 5460. Most of the samples contain 60 per cent. or over. The other 30 per cent. is in some cases mostly and in all largely water, but besides cane sugar and water there are larger or smaller amounts of "invert sugar" (a mixture of "glucose" and "fructose" sugars), which always results when cane sugar solutions containing acids (juice or sap) are heated and boiled as in open pan sugar-making. A properly prepared solution of pure dry cane sugar polarizes +100 degrees. After heating with hydrochloric acid the cane sugar is changed to "invert sugar," which polarizes —36½° at a temperature of 15° C. In most cane sugars and in syrups containing cane sugar only, the same relation holds so that such a syrup, giving direct polarization of +50°, would polarize −18.25° after inversion and would accordingly contain 50 per cent. of cane sugar.

But sugars or syrups that already contain invert sugar, show in consequence a less direct +polarization and a greater −polarization than those which contain a like amount of cane sugar *without* invert sugar. Thus in the sample of maple syrup first in Table I the 56 per cent. of cane sugar corresponds to +56° of direct polarization and about — 19.3° after inversion. The difference—2.9 degrees—represents the polarizing effect of invert sugar, with small quantities possibly of other optically active substances.

Assuming, however, that cane and invert sugar are the only optically active things present, the amount of invert sugar is 1.44 per cent.

Table II, page 12, gives the analyses of seven samples of "Maple Sugar."

Whether these were made entirely from maple juice or are imitations of maple sugar cannot, in the present state of knowledge, be certainly determined by chemical examination.

They contain 10 to 15 per cent. of moisture.

TABLE I.—MAPLE SYRUPS.

Station No.	Label on Package.	Manufacturer, Producer, or Wholesaler.	Dealer.	Cost per Package.	Polarization.			Sucrose or Cane Sugar.
					Direct.	After Inversion.		
					Degrees	Degrees	Temperature. C.	Per cent.
5488	Pure Maple Syrup	Hildreth Bros. & Segelken, N.Y.	A. J. Finney, 202 Main St., Stamford	$0.22	+53.1	—22.2	19.0	56.0
5298	Leonard's Pure Vermont Maple Syrup	D. C. Leonard & Son, Wilmington, Vt.	Newton & Robertson, Hartford	.35	+56.7	—20.0	24.6	58.3
5096	Maple Syrup	C. L. Houghton & Co, Northampton, Mass.	Grocery, S. W. corner Wallace & Walnut Sts., New Haven	.25	+57.5	—17.6	27.8	57.7
5384	Golden Crown, Pure Sap Maple Syrup	Clark, Chapin & Bushnell, N. Y.	W. H. Bronson, 234 Main St., Ansonia	.25	+58.8	—20.2	21.3	59.3
5380	Golden Crown, Pure Sap Maple Syrup	Clark, Chapin & Bushnell, N. Y.	R. D. Baldwin, Bridge St., Winsted	.25	+58.8	—20.5	21.3	59.4
5302	The Vt. Maple Sugar Ex. &c. Guarantees This Maple Syrup Strictly Pure	The Vermont Maple Sugar Ex., Brattleboro, Vt.	H. J. Case & Co., Hartford	.35	+58.8	—21.6	24.0	60.8
5301	Warranted Strictly Pure Maple Syrup	B. Frank Steele & Co., Springfield, Mass.	Earnest Glaeser, Rockville	.25	+59.2	—19.6	25.0	59.7
5383	Maple Sap Syrup. Put up and Guar. by	Welch Bros. Maple Co., Burlington, Vt.	Waterbury Grocery Co., 163 Bank St., Waterbury	.25	+59.5	—20.7	22.2	60.3
5497	Irving's Vermont Maple Syrup		Fitch A. Hoyt, Stamford, Conn.	.22	+59.6	—21.9	18.8	60.6
5422	None	Not known	T. W. Potter, New London, Conn.	1.00*	+59.6	—21.5	21.6	60.8
5369	Pure Maple Syrup. Put up by	David H. Geer & Son, Boston, Mass.	Grocery, 234 E. Main St., Bridgep't	.12	+59.6	—20.6	21.8	60.2
5376	Pure Vermont Maple Syrup	D. Trubee & Co., Bridgeport, Conn.	E. L. Sullivan, 436 E. Main St., Bridgeport	.25	+60.0	—20.2	22.5	60.4
5092	Hazen's Vt. Maple Syrup, Warranted Pure		Gilbert & Thompson, New Haven	.45	+60.6	—20.1	26.0	61.6
5042	None	Not known	L. D. Chidsey, New Haven	.75 can	+60.3	—20.4	25.0	61.3
5381	Famous Vt. Maple Syrup. Strictly Pure	Clark, Chapin & Bushnell, N.Y.	N. W. Heater, Waterbury, Conn.	.20	+61.1	—20.2	22.3	61.4
5309	Pure Maple Syrup	The Vt. Maple Sugar Ex., Brattleboro, Vt.	H. I. Palmer, Norwich, Conn.	.75†	+61.5	—21.8	23.4	62.9
5097	None	Said to be Thompson, Northampton	D. S. Cooper Co., 470 State St., New Haven	.25	+61.7	—20.0	26.3	62.4
5499	Hampshire County Maple Syrup	Leslie, Dunham & Co., Pittsfield, Mass.	N.Y. Cash Grocery, Norwalk, Conn.	.20	+62.0	—22.0	18.3	62.3

* Gallon. † One-half gallon.

TABLE I.—MAPLE SYRUPS—*Continued.*

Station No.	Label on Package.	Manufacturer, Producer, or Wholesaler.	Dealer.	Cost per Package.	Polarization.			Sucrose or Cane Sugar.
					Direct.	After Inversion.		
					Degrees	Degrees	Temperature. C.	Per cent.
5312	Climax Pure Maple Syrup	C. T. & J. C. Joslyn, Waitsfield, Vt., and Malden, Mass.	J. P. Halloway, Norwich, Conn.	$0.30	+62.0	—20.9	23.4	62.6
5303	Maple Sap Syrup. Put up and Guaranteed by	Green Mountain Maple Asso.	W. W. Walker, Hartford	.24	+62.5	—21.0	24.7	63.4
5426	Maple Syrup	The Crystal Conserve Co., N. Y.	Logan Bros., Main St., Bridgeport	.10	+62.6	—21.3	21.9	63.1
5313	Vermont Maple Syrup. Warranted 1st Quality	J. H. Barker & Co., Rutland, Vt.	Welcome A. Smith, Norwich	.35	+62.6	—21.7	23.7	63.8
5385	Warranted Strictly Pure Vt. Maple Syrup		Dillon's Cash Grocery, Ansonia	.25	+62.8	—20.8	22.2	62.9
5387	Vermont Maple Syrup	Hildreth Bros. & Segelken, 28 & 30 W. Broadway, N. Y.	The Clarke & Stevens Grocery, Shelton	.35	+62.8	—20.7	22.8	63.6
5396	The Crystal Conserve Co. Maple Syrup	F. H. Leggett & Co., N.Y., Prop.	A. H. Armington, Danielson	.18	+62.8	—21.1	22.0	63.1
5098	Strictly Pure. Made in Wyndham Co., Vt.	Thompson & Cromack, Northampton.	Berry & Bailey, 946 Grand Ave., New Haven	.25	+63.0	—19.5	27.5	63.3
5044	Pure Vt. Maple Syrup. Put up expressly for	D. M. Welch & Son, New Haven, Conn.	D. M. Welch & Son, New Haven	.22	+63.0	—20.0	26.8	63.6
5386	None	F. H. Pratt, Tolland, Mass.	J. C. O'Brien, Main St., Ansonia	.40	+63.0	—21.0	23.1	63.4
5379	Maple Syrup	The Crystal Conserve Co., N. Y.	McGraw & Baldwin, Danbury	.25	+63.1	—21.0	21.3	63.3
5311	None	J. C. Worth, Norwich	Wheeler Bros., Norwich	.30	+63.2	—22.2	22.5	63.6
5465	None		P. W. Hiller, New Britain	.15	+63.3	—21.2	22.9	63.8
5299	Mascot Brand, Pure Maple Syrup	R. N. Fitzgerald, 142 State St., Hartford	Purinton & Reade, Willimantic	.35	+63.4	—21.2	24.8	64.3
5095	Superb Pure Maple Syrup	Not known	Coe & Field, New Haven, Conn.	.25	+63.4	—20.7	26.6	64.4
5500	None	Not known	Betts & Farrington, Norwalk, Conn.	.10	+63.5	—22.0	19.0	63.5
5395	None	W. J. Lamb, W. Somerville, Mass.	W. H. Brown, Moosup	.25	+63.7	—20.6	21.5	63.2
5300	Pure Maple Syrup. Orange Co., Vt.	W. J. Lamb, W. Somerville, Mass.	Ransom Bros., Rockville	.30	+64.1	—20.9	24.8	64.6
5374	Pure Maple Syrup. Enosbury, Vt.	D. H. Geer & Son, Boston, Mass.	Store at 47 White St., Danbury	.15	+64.2	—21.5	22.5	64.5
5462	Warranted Strictly Pure Maple Syrup. Put up for	F. M. Hotchkiss, Meriden, Conn.	N. P. Lamontague, Meriden	.25	+64.3	—21.9	22.6	64.9
5372	Vermont Maple Syrup		Gustav. E. Friedrich, So. Norwalk	.30	+64.4	—21.6	22.0	64.4
5046	Warranted Pure Vt. Maple Syrup	Stoddard, Kimberly & Co., N. H.	H. S. Dailey, 97 Whalley Ave., N. H.	.35	+64.6	—20.7	27.4	65.5
5375	Green Mountain Maple Syrup. Pure and Delicious	Austin, Nichols & Co., N. Y.	Doran's Cash Grocery, Danbury	.25	+64.6	—22.2	22.5	65.4

TABLE I.—MAPLE SYRUPS—*Continued.*

Station No.	Label on Package.	Manufacturer, Producer, or Wholesaler.	Dealer.	Cost per Package.	Polarization.			Sucrose or Cane Sugar.
					Direct.	After Inversion.		
					Degrees	Degrees	Temperature. C	Per cent.
5463	Thompson's Absolutely Pure Maple Syrup	J. E. Thompson	Sovereigns' Trading Co., N. Britain	$0.25	+64.7	−19.6	23.3	63.7
5464	Warranted Strictly Pure Maple Syrup	G. W. Moseley & Son, Hartford	Lee Bros. & Co., New Britain, Conn.	.30	+64.8	−21.0	21.9	64.5
5045	Pure Maple Syrup. Woodstock, Vt.	F. P. Adams & Co., Boston, Mass.	P. Jente & Bro., Broadway, N. H.	.23	+65.1	−21.1	25.6	65.7
5447	Warranted Strictly Pure Maple Syrup	G. W. Moseley & Son, Hartford, Conn.	Hill Grocery, 552 Asylum St., H'tf'd	.28	+65.2	−23.3	18.9	65.7
5460	Home Brand, Warranted Strictly Pure Vermont Maple Syrup	Bryan, Miner & Reed, New Haven	E. F. Buhles, Meriden	.25	+66.4	−22.3	19.2	66.0
5371	Vermont Maple Syrup	J. H. Green, 150 Flushing Ave., Brooklyn, N. Y.	Cenn. Am. Tea Co., 856 Main St., Bridgeport, Conn.	.10	+41.2	−21.2	22.5	47.0
5377	None	Unknown	Grocery, 87 White St., Danbury	.30	+49.6	−20.6	22.7	52.9
5094	Pure Maple Syrup	H. D. Gloyd, Charlestown, Mass.	J. H. Dore, 763 Grand Ave, N. H.	.23	+61.1	−11.7	25.6	55.5
5093	Thompson's Absolutely Pure Maple Syrup	J. E. Thompson	C. E. Hart & Co., 350 State St., "	.30	+71.0	− 8.7	26.0	60.8
5461	Pure Vermont Maple Syrup	James Butler, 406 Greenwich St., N. Y.	Russell Bros., Meriden	.10	+69.6	− 5.0	19.2	55.5
5397	Mayflower Brand Pure Maple Syrup	R. N. Fitzgerald, Hartford, Conn	Perkins & Bliss, Willimantic	.30	+74.3	− 5.9	22.8	60.5
5043	Pure Vermont Maple Syrup		Johnson & Bro., 411 State St., N. H.	.35	+72.1	− 0.2	25.3	55.1
	Adulterated "Maple Syrups," Consisting of or Containing Glucose Syrup.							
5316	The Champion Brand Pure Maple Syrup	C. A. Reed, Medford, Mass.	James M. Young, Preston	.25	+80.0	+18.9	22.0	
5370	Vermont Maple Syrup	J. H. Green & Sons, Brooklyn, N. Y.	Store cor. E. Main and Clarence Sts., Bridgeport	.10	+85.0	+37.6	22.1	
5388	Pure Maple Syrup for Family Use	Silas F. Jones, Hancock, Vt	J. Burkhardt & Co., Shelton	.25	+93.7	+48.3	22.5	
5394	Said to be	W. J. Lamb, W. Somerville, Mass.	Quinnebaug Store, Danielson	.25	+95.0	+58.7	23.1	
5498	Pure Maple Syrup		Finney & Benedict, Norwalk	.25	+96.4	+37.7	20.3	
5279	Pure Maple Syrup for Family Use	Fournier & Schiller Co., Rochester, Vt.	H. Dion, Willimantic	1.00*	+97.4	+61.2	24.0	
5446	Hudson Brand Maple Syrup	Hudson M'f'g Co., 61 Hudson St., N. Y.	C. F. Cleaveland, Windsor Locks	.25	+100.0	+45.6	19.0	
5373	Thompson's Maple Syrup	259 Greenwich St., N. Y.	Chas. Starr, New Milford, Conn.	.25	+105.0	+50.9	21.5	

* Gallon.

TABLE II.—MAPLE SUGARS.

Station No.	Label.	Producer or Wholesaler.	Dealer.	Cost per Package.	Polarization.			Sucrose, or Cane Sugar.
					Direct.	After Inversion.		
					Degrees.	Degrees.	Temperature. C.	
5100	None	Not known	D. S. Cooper Co., 470 State St., New Haven	$0.12	+84.1	−28.8	25.0	85.9
5308	None	W. J. Lamb, W. Somerville, Mass.	Brainard & Bartlett, Putnam	.15	+85.8	−27.3	22.9	85.3
5099	Genuine Vt. Maple Sugar	C. T. & J. C. Joslyn, Malden, Mass.	Coe & Field, 422 State St., New Haven	.15	+86.1	−27.6	27.2	87.2
5304	None	W. J. Lamb, W. Somerville, Mass.	Ransom Bros., Rockville	.15	+87.5	−27.5	26.0	87.8
5382	None	Hildreth Bros. & Segelken, N. Y.	The Clark & Stevens Store, Shelton	.18	+87.7	−28.3	21.9	87.2
5389	Gem Pure Vt. Maple Sugar	Clark, Chapin & Bushnell, N. Y.	W. H. Bronson, 234 Main St., Ansonia	.15	+88.0	−28.3	22.5	87.6
5317	None	W. J. Lamb, W. Somerville, Mass.	H. D. Rallion, 45 Broadway, Norwich	.20	+88.4	−29.3	22.0	88.5

SUGARS.

By A. W. Ogden.

Three samples of granulated sugar, ten of powdered sugar and three of brown sugar, have been examined, with the results given in Table III.

Powdered sugar is sometimes suspected by purchasers of being adulterated with flour or terra alba because of a real or imagined lack of sweetness, but no evidence of adulteration has been found in any of the samples here examined.

The powdered and granulated sugars contain from 98 to 99.5 per cent. of pure sugar; the brown sugars, like the maple sugars, contain from 10 to 15 per cent. of moisture.

Table III.—Sugar.

No.	By Whom Sold.	Price. Cents per Pound.	Per cent. of Pure Sugar. (Sucrose.)
	Granulated Sugar.		
5051	Benjamin Blumenthal, 229 Market St., Hartford	6	99.0
5052	Isaac Lechner, 203 Front St., Hartford	5	99.2
5053	Joseph Malley, 137 Front St., Hartford	5	99.2
	Powdered Sugar.		
5057	——— Davis, 228 Shelton Ave., New Haven	8	98.4
5058	J. Casseriego, Cor. Starr St. and Shelton Ave., New Haven	8	99.4
5059	Voelcker Bros., Cor. Gibbs St. and Shelton Ave., New Haven	8	99.4
5060	I. Strack, Cor. Munson St. and Shelton Ave., New Haven	8	99.0
5061	A. C. Tillman, 7 Shelton Ave., New Haven	8	99.0
5062	A. A. Eissele, Cor. Henry St. and Dixwell Ave., New Haven	8	99.4
5063	C. Kipp, 292 Dixwell Ave., New Haven	8	99.4
5064	C. Richards, 181 Dixwell Ave., New Haven	10	98.8
5065	J. T. Pohlman, 140 Dixwell Ave., New Haven	----	99.2
5066	P. Jente & Bro., Broadway, New Haven	7	98.8
	Brown Sugar.		
5055	Joseph Malley, 137 Front St., Hartford	5	84.8
5055	Benjamin Blumenthal, 229 Market St., Hartford	5	89.2
5056	Isaac Lechner, 203 Front St., Hartford	5	84.8

"SYRUP."

Table IV gives analyses of four articles bearing this name. Nos. 5502, 5378 and 5278 are glucose syrups; No. 5501 is apparently a cane sugar syrup.

As no distinct claim is made regarding either of these articles they cannot be considered adulterated.

TABLE IV.—"SYRUPS."

Station No.	Name of Brand.	Manufacturer or Wholesaler.	Retail Dealer.	Cost per Package.	Direct Polarization.	Polarization after Inversion.	Temperature.
5501	Sold for Sugar Syrup		S. Comstock, Jr., 72 N. Main St., South Norwalk	$0.03 ½ pt.	+ 36.5	— 13.2	22.3
5502	Queen Syrup	G. Boyd & Sons, 8th and Cantrell Sts., Phila.	D. S. Davenport, S. Norwalk.	.25	+ 97.5	+ 68.2	22.0
5378	Queen Syrup	G. Boyd & Sons	P. D. Vroom, 5 Keeler Street, Danbury	.30	+113.8	+ 93.6	23.8
5278	Sold for Sugar Syrup	Halpin & Green, N. Y.	W. W. Walker, Hartford	.50 gall.	+129.4	+114.1	24.5

HONEY.

By A. W. Ogden.

Honey consists of the nectar of flowers elaborated by the bee and laid down in the cells of the honey comb.

This is in substance the definition given in the dictionaries and recognized by writers on food products and food adulterations.

It is a not uncommon practice to feed bees, when flowers are scarce, with sugar in some form to carry them along till they can get a full supply of nectar from flowers. But in order to lessen the work of the hive and so to increase production, cane sugar is sometimes fed abundantly and continuously when it is not at all essential to the bees.

This cane sugar, more or less converted by the bees into invert sugar, is laid down in the comb; but according to the definition given above, is not, strictly speaking, true honey.

Thus it happens, as in sample 5050 in Table V, p. 16, that "honey" bought in a comb which has not been removed from the frame into which it was built by the bees, and therefore, where direct adulteration by a dealer is in the nature of things impossible, may yet contain a large percentage amount of cane sugar. It was most probably taken by the bees from their artificial food and was laid down within the cells without conversion into invert sugar.

The buyer of honey, *in the comb*, therefore is not sure of getting honey made wholly from the nectar of flowers.

Invert sugar and glucose syrup are common adulterants of the "strained honey" of the shops and a dead bee or a fragment of comb floating on the surface is no sure sign that the liquid beneath is not glucose syrup with some coloring and flavoring matter.

Forty-eight samples of strained honey and twelve samples of comb honey have been bought by agents of the Station in nineteen cities and villages, and the results of their examination are given in the following table.

Honey in the Comb.

Table V contains 12 samples of this class. Of these we consider the first six, numbers 5610, 5611, 5049, 5105, 5486 and 5490, to be genuine.

TABLE V.—COMB HONEYS.

Station No.	Label.	Producer or Wholesaler.	Dealer.	Price per Package.	Polarization.			
					Direct.		After Inversion	
					Degrees.	Temperature C,	Degrees.	Temperature C.
	Probably genuine.							
5610	None.*	C. H. Chittenden, Killingworth, Conn.	A. B. Stevens, 61 Broadway, N. H.	$0.18	— 0.6	24.9	— 6.6	24.5
5611	" †	" " " "	" " " "	.18	— 4.7	25.0	—10.1	25.0
5049	"	Austin, Nichols & Co., Hudson St., N. Y.	Johnson & Bro., 411 State St., New Haven	.15	— 7.3	21.5	—14.1	24.7
5105	"	Said to come from Westville, Conn.	E. E. Nichols, 378 State St., New Haven	.25	— 6.2	21.5	— 9.2	24.7
5486	"	Not known	Geo. A. Ferris, 184 Main St., Norwalk	.18	— 6.7	23.8	—10.3	22.5
5490	"	" "	Betts & Farrington, Wall St., "	.20	— 9.7	23.3	—15.4	20.2
	Possibly from bees fed with Sugar.							
5104	None on box	On crate, J. E. Hetherington, Cherry Valley, N. Y.	Coe & Field, 422 State St., N. Haven	.20	—12.3	23.6	—15.4	25.0
5367	"	Not known	Wilcox & Adams, Winsted, Conn.	.18	—11.8	23.6	—14.2	24.9
5366	From the apiary of Ward Lamkin, Ledyard, N. Y. Comb Honey	Ward Lamkin, Ledyard, N. Y.	E. L. Sullivan, 436 E. Main St., Bridgeport, Conn.	.18	—16.4	23.4	—18.0	24.4
5365	None on box	From the apiary of F. Greiner, Naples, N. Y.	Foot Bros., W. Main St., Waterbury.	.18	—16.6	23.0	—17.8	24.3
5368	"	Not known	D. M. Welch & Son., New Haven	.10	—19.5	23.4	—20.5	24.0
	Containing Cane Sugar.							
5050	New England No. 7 apiary	H. D. Davis & Co., So. Newbury, Vt.	Johnson & Bro., 411 State St, New Haven	.15	+18.5	25.2	— 9.0	24.0

* From sumach, tulip and basswood.

† From sumach, and possibly some basswood.

The next five, numbers 5104, 5367, 5366, 5365, 5368, may represent "honeys" from bees fed more or less with sugar.

No. 5050 is probably from bees which had been abundantly fed with cane sugar in some form. It contains 20.8 per cent. of cane sugar.

The per cents. of ash in the four samples, Nos. 5049, 5105, 5104 and 5050, were .24, .26, .46, and .03 respectively.

STRAINED HONEYS.

Table VI contains the tests of 48 samples of this class. Seven of them, as indicated in the table, are probably genuine. Thirty-four are suspected of representing honey from bees fed on sugar or of being adulterated with invert sugar.

Two others contain considerably larger amounts of cane sugar, which either came from the sugar on which the bees were fed or was added to the honey as an adulterant.

The last five in the table, Nos. 5360, 5270, 5273, 5314, 5352, are unquestionably adulterated with glucose syrup.

Samples numbered 5359, 5354 and 5363 contain 14.6, 29.3, and 23.1 per cent. of cane sugar respectively.

The per cents. of ash in samples numbered 5101, 5048, 5103, 5102, and 5091 are .20, .02, .09, .36, and .09 respectively.

A considerable number of samples of "honey" were in packages identical in form and size and bearing labels of the same size, form and wording, but the contents of these packages were nevertheless quite unlike in quality.

These are included in Table VII. The first column gives the numbers of the samples, with brackets enclosing those which were contained in packages of one kind; the second column gives the label, common to the packages, while the following columns give the results of the examination.

Thus it is seen that there were two samples, 5360 and 5425, both in packages (bottles) of the same shape and size and both bearing the label, "Pure California Honey, put up expressly for family or medical use." The label bore the picture of a busy bee-hive. One of these bottles contained glucose syrup (5360), and the other (5425) invert sugar or possibly honey made from bees fed with cane sugar.

There were five samples, 5352, 5467, 5492, 5494, and 5047, put up in glass "tumblers" of precisely the same size and shape,

TABLE VI.—STRAINED HONEYS.

Station No.	Label.	Manufacturer or Producer.	Dealer.	Price per package.	Polarization.			
					Direct.		After inversion	
					Degrees.	Temperature, C.	Degrees.	Temperature, C.
	Probably Pure.							
5276	Pure Extracted Honey	Helen Johnson, Middle Haddam, Ct.	Hills & Co., Hartford, Conn.	$0.50	— 1.0	23.8	— 5.1	24.8
5485	Pure Honey	Wm. T. Gregory, Norwalk, Conn.	Finney & Benedict, Norwalk, Conn.	.25	— 3.6	22.8	— 8.4	24.0
5449	Choice Honey	C. A. Stanton, Newington, Conn.	J. A. Pilgard, 138 Front St., Hartford, Conn.	.25	— 5.1	23.8	—11.0	22.3
5467	Pure Honey	Not known	Rudolph Bros., Meriden, Conn.	.20	— 7.9	23.3	—11.2	22.0
5310	Choice Extracted Honey. Strictly Pure	E. C. Hazard & Co., New York	H. I. Palmer, Norwich, Conn.	.20	— 5.6	23.2	—16.5	24.0
5423	Pure Orange Blossom Honey. Eagle Brand	Not known	Doran's Cash Grocery, 150 Main St., Danbury, Conn.	.20	— 6.8	25.1	—15.6	22.4
5362	None	Sold for native honey	M. H. Tilley, Derby, Conn.	.18	— 7.2	23.8	—14.0	24.2
	Possibly from bees fed with sugar, or the honey adulterated with invert sugar.							
5355	None	Not known	J. B. Sullivan. E. Main St., Bridgeport	.20	—10.1	23.3	—14.1	24.7
5361	None	Said to be Lamb	L. P. & A. M. Guilfoile, Bank St., Waterbury	.20	—10.3	23.4	—14.7	24.2
5364	Pure California Honey	D. H. Geer & Son, Andrew Sq., Boston	J. B. Vallee, 21 Grand St., Waterbury	.25	—11.0	22.7	—16.2	23.6
5424	Choice Extracted Honey. Strictly Pure	E. C. Hazard & Co., New York	Waterbury Grocery Co., 163 Bank St., Waterbury	.25	—11.8	25.1	—14.5	22.5
5420	1 Pound Pure Honey	Not known	W. S. Chappell, 148 State St., New London	.25	—12.0	24.7	—17.3	22.5
5495	None	Said to be native from New Canaan	T. Leeds, Stamford, Conn.	.18	—12.4	22.6	—17.2	18.5
5492	Pure Honey	Said to be native	D. S. Davenport, N. Main St., South Norwalk	.18	—12.7	23.7	—16.9	21.2

TABLE VI.—STRAINED HONEYS—*Continued.*

Station No.	Label.	Manufacturer or Producer.	Dealer.	Price per package.	Polarization.			
					Direct.		After inversion	
					Degrees.	Temperature, C.	Degrees.	Temperature, C.
5448	1 Pound Pure Honey	Said to be Phelps	C. F. Cleaveland, Windsor Locks	$0.25	—13.2	22.5	—16.1	18.4
5351	None	Said to be W. J. Lamb	M. S. Burgess, Derby Junction	.25	—13.4	23.3	—16.5	25.0
5315	Pure Honeysuckle Honey	W. J. Lamb	H. D. Rallion, Norwich	.25	—13.7	22.0	—16.1	24.4
5356	None	Said to be farmer's honey	McGraw & Baldwin, Danbury	.20	—13.9	22.8	—16.5	25.2
5421	None	Said to be Cal. honey. From Am. Grocery Co., New York	T. W. Potter, 72 State St., N. London	.25	—14.3	23.5	—19.1	22.9
5277	Pure Extracted White Clover Honey	H. A. Whittlesey, Newington, Conn.	Newton & Robertson, Hartford	.25	—14.4	24.0	—17.4	24.5
5496	None	Said to be native from New Canaan	W. & E. Osterbanks, Norwalk	.30	—14.6	22.0	—19.3	19.6
5494	Pure Honey	Not known	Addison Brown, Wall St., Norwalk	.20	—14.9	23.7	—17.6	22.9
5353	None	Said to be native from farmers	Chas. Starr, New Milford	.15	—15.1	23.3	—17.6	25.4
5357	Strained Honey	Francis H. Leggett & Co., New York	Logan Bros., Bridgeport	.25	—16.2	22.3	—19.4	25.0
5491	None	Not known	G. W. Raymond, Norwalk	.15	—16.6	22.9	—19.9	20.8
5101	Pure White Clover Honey	W. J. Lamb	S.S. Adams, 412 State St., New Haven	.15	—16.8	25.7	—19.1	26.5
5275	Pure Strained Honey	The Crystal Conserve Co., New York	Hills & Co., Hartford	.25	—17.3	23.5	—20.5	24.6
5358	None	Said to come from Leggett	Barnum & Reed, 307 Main St., Danbury	.25	—17.4	22.6	—18.7	24.6
5274	None. Sold for Orange Blossom	Hildreth Bros. & Segelken, New York	W. W. Walker, Hartford	.15	—17.6	24.5	—18.9	24.6
5048	Pure Clover Dell Honey	D. M. Welch & Son	D. M. Welch & Son, Congress Ave., New Haven	.10	—18.1	25.5	—21.3	24.1
5047	Pure Honey	Not known	F. H. Kearney, Cor. Hill and Congress Ave., New Haven	.15	—18.2	22.7	—19.6	23.7
5103	Pure White Cal. Honey	F. P. Adams & Co., Boston, Mass.	F. A. Basserman, 621 Grand Ave., New Haven	.25	—18.4	21.9	—20.2	24.4
5272	Pure Honeysuckle Honey	W. J. Lamb	F. Farrenkopf, Rockville, Conn.	.20	—18.4	24.0	—20.5	24.7

TABLE VI.—STRAINED HONEYS—*Continued.*

Station No.	Label.	Manufacturer or Producer.	Dealer.	Price per package.	Polarization.			
					Direct.		After inversion	
					Degrees	Temper-ature, C.	Degrees.	Temper-ature, C.
5489	Orange Blossom Honey, &c.	Leslie, Dunham & Co., Brooklyn, N.Y.	A. J. Finney, 202 Main St., Stamford	$0.25	—18.5	23.1	—23.1	22.2
5466	Choice Honey	C. A. Stanton, Newington	Sov. Trading Co., 282 Main St., New Britain	.18	—18.8	21.4	—21.5	22.2
5493	Pure Orange Blossom Honey. Eagle Brand	Not known	W. R. Bates, Norwalk, Conn.	.18	—19.0	22.8	—22.1	20.7
5271	None	Said to be Lamb	Ransom Bros., Rockville, Conn.	.20	—19.6	24.2	—19.8	24.7
5102	Pure Extracted Honey	H. D. Gloyd, Boston, Mass.	Daniel Dore, 577 Grand Ave., New Haven	.15	—20.4	23.0	—22.7	25.6
5425	Pure California Honey	Not known	Not known	.18	—20.8	24.8	—25.1	21.7
5091	Orange Blossom Honey, &c.	Leslie, Dunham & Co., Brooklyn, N.Y.	Gilbert & Thompson, New Haven	.30	—21.2	22.3	—24.0	26.1
5359	Pure Orange Blossom Honey. Eagle Brand	Not known	Village Store Co., E. Main St., Bridgeport	.18	+ 1.2	24.5	—18.2	23.6
	Contain Cane Sugar.							
5354	Pure Clover Honey	Vermont Maple Syrup Co., Bridgeport	D. Hallett, 470 E. Main St., Bridgeport	.20	+24.2	23.3	—14.5	23.7
5363	Durkee's Choice Extracted Clover Honey	J. W. Durkee & Co., New York	E. F. Platt, 37 E. Main St., Waterbury	.10	+15.0	23.2	—15.6	23.0
	Consist of or contain glucose syrup.							
5360	Pure California Honey (&c.)	Not known	M. Blanchette, S. Main St., Waterbury	.20	+30.2	23.5	+27.2	24.0
5270	Pure Strained California Honey	Hildreth Bros. & Segelken, New York	E. Glaeser, Rockville	.20	+38.4	23.3	+35.6	24.0
5273	Choice Clover Honey	Chas. Israel & Bro., New York	H. J. Case & Co., Hartford	.20	+43.2	24.7	+38.2	24.4
5314	Choice Golden Rod Honey (&c.)	Wm. Thompson, Wayne Co., N. Y.	W. A. Smith, Norwich	.25	+53.5	23.7	+50.5	23.8
5352	Pure Honey	Not known	79 White St., Danbury	.18	+58.8	23.6	+56.4	24.0

each bearing a label showy with flowers, with the highly idealized picture of a bee in the center, over the picture of a hive, and the words, "Pure Honey." "Trademark."

No two samples were alike in composition. One was probably pure honey, another was certainly glucose syrup, the three others were perhaps honey, but of doubtful purity.

TABLE VII.—SAMPLES OF HONEY PUT UP IN SIMILAR PACKAGES.

No.	Label of Packages.	Polarization.			
		Direct.		After Inversion.	
		Degrees.	Temperature, C.	Degrees.	Temperature, C.
5420	1 Pound Pure Honey. (Blown in bottle.)	−12.0	24.7	−17.3	22.5
5448		−13.2	22.5	−16.1	18.4
5359	Pure Orange Blossom Honey. Eagle Brand	+ 1.2	24.5	−18.2	23.6
5423		− 6.8	25.1	−15.6	22.4
5493		−19.0	22.8	−22.1	20.7
5360	Pure California Honey. Put up expressly for family or medical use	+30.2	23.5	+27.2	24.0
5425		−20.8	24.8	−25.1	21.7
5272	Lamb's Pure Honeysuckle Honey	−18.4	24.0	−20.5	24.7
5315		−13.7	22.0	−16.1	24.4
5352	Pure Honey	+58.8	23.6	+56.4	24.0
5467		− 7.9	23.3	−11.2	22.0
5492		−12.7	23.7	−16.9	21.2
5494		−14.9	23.7	−17.6	22.9
5047		−18.2	22.7	−19.6	23.7
5310	Choice Extracted Honey. E. C. Hazard & Co.	− 5.6	23.2	−16.5	24.0
5424		−11.8	25.1	−14.5	22.5
5449	C. A. Stanton. Choice Honey, Newington, Conn.	− 5.1	23.8	−11.0	22.3
5466		−18.8	21.4	−21.5	22.2
5091	Orange Blossom Honey. Leslie, Dunham & Co., Brooklyn, N. Y.	−21.2	22.3	−24.0	26.1
5489		−18.5	23.1	−23.1	22.2

EXAMINATION OF LARD.

By A. L. Winton.

Pure Lard.

Pure lard is the fat of swine, separated from the animal tissue by the process of "rendering." It should contain less than one per cent of water and foreign matters.

The choicest lards are made from the whole "leaf," or from the residue, after rendering the leaf at low temperatures and expressing the "neutral lard" which is used in the manufacture of oleomargarine. A good quality of lard is also made from back-fat and leaf rendered together. Fat from the head and intestines goes to make cheaper grades.

Lards may be either kettle or steam-rendered; the kettle process being usually employed for the choicer fat parts of the animal, while head and intestinal fat furnish the so-called "steam lard." Steam lard, however, is sometimes made from the leaf, and on the other hand other parts than the leaf are often kettle-rendered. Kettle-rendered lard usually has a fragrant cooked odor and a slight color, while steam lard often has a strong animal odor.

Adulterations of Lard.

Bell (1881) stated that water is the only adulterant which came under his notice in England. Dietzsch (1883) cited water as the chief adulterant, but added that "American refined lard" is a mixture of hog fat, oleomargarine, stearin and beef tallow.

The celebrated case of McGeoch, Everingham & Co. vs. Fowler Bros., which was tried before the Chicago Board of Trade in 1883, developed the facts that the mixing of cotton seed oil, beef stearin, etc., with lard at that time was practiced in Chicago. The chief, and at present, apparently the only adulterants of lard in common use, are other cheaper fats, of which cotton seed oil and "stearin"* are the ones mostly used; the former especially because of its cheapness, the latter in order to give solid consistence to the mixture.

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* By rendering at a low temperature, and subsequently straining and pressing, beef fat is separated into two parts; "oil," which finds use in the manufacture of oleomargarine or imitation butter, and "stearin," the more solid fat used in making lard substitutes or imitations.

The misleading term "refined lard," which, until 1889, was used to designate imitations, composed largely of cotton seed oil and beef stearin, has since been abandoned, and such mixtures are now branded as "lard compounds."

N. K. Fairbank & Co. and Swift & Co. have gone a step further and manufacture, under the names of cottolene and cotosuet, mixtures of cotton seed oil and beef fat, which are not sold as imitations of lard, but as substitutes, under copyrighted trade names.

Neither of the materials used as lard adulterants are considered to be at all injurious to health. But the mixture of cotton seed oil and stearin is cheaper than pure lard, and by many people is considered inferior for culinary operations.

METHODS OF DETECTING LARD ADULTERATIONS.

The most complete work on the subject of lard adulteration was published by Wiley as Part IV, Bulletin 13, of the U. S. Department of Agriculture, Division of Chemistry. In this are described in detail the processes used in the manufacture of lard and lard adulterants, the properties of these fats, the methods of identification, and the results of the examination of numerous samples of pure and adulterated lards, cotton seed oil, various stearins, etc.

Of the numerous methods which have been proposed for the detection of foreign fats, three have been selected as best suited for our purpose.

1.—Bechi's silver test as modified by Dudley is described in detail by Wesson, in a recent article on lard adulteration (Jour. Amer. Chem. Soc. xvii, 724). The author, whose experience in this kind of work has been very extensive, states that this is the best single test for cotton seed oil we have. In doubtful cases the lard should be treated with nitric acid, as recommended by Wesson.

2.—Hübl's Iodine absorption number: I have followed in all essentials Hübl's directions as given in Bulletin 13, Part IV, of the Division of Chemistry, U. S. Dept. of Agriculture, p. 462.

For weighing the fat, however, I have used, as recommended by Wesson, flat-bottomed glass cylinders, 10 mm. in diameter and 20 mm. high.

These weigh less than 2 grams and do not change weight perceptibly from one weighing to another.

Five to seven c.c. of the melted fat (according as the iodine number is high or low), are measured into a weighed cylinder from a delicate pipette. After cooling, the cylinder and fat are weighed and introduced into the glass-stoppered vial in which the subsequent operations are performed.

3.—Belfield's microscopic test modified by Gladding: The details of this process were kindly furnished by Mr. T. S. Gladding, and have since been published by him, Jour. Am, Chem. Soc. xviii, p. 189.

EXAMINATION OF LARD FROM THE CONNECTICUT MARKET.

One hundred and sixty-two samples have been collected by agents of the Station, in twenty-one cities and villages of Connecticut, between the third of October and twenty-third of November, 1895.

These samples fall into three classes :

1st.—Pure lard.

2d.—Lard substitutes, "compound lards," cottolene, cotosuet, etc., sold under their trade names, but not as pure lard.

3d.—Adulterated lard, or imitations sold as lard.

Some samples were evidently duplicates of well known brands, already examined, and were not tested.

Pure Lard.—In Table VIII are given the results of examination of sixty-four samples of this class.

The first six samples are stated to have been rendered by the butchers from whom they were purchased. The nine samples which follow them were probably all kettle-rendered. Of the remainder a considerable number were undoubtedly steam lards. The prices paid for these pure lards ranged from nine to fourteen cents per pound. The average price was 11.4 cents.

Bechi's test, applied directly, usually gave with these pure lards no color at all or only a slight color. In a few samples, probably steam lards, a decided purple color was obtained, but after purification of the fat by nitric acid as described by Wesson, Bechi's test produced only a slight coloration.

The highest iodine number is 68.3, the lowest 54.5. The lower numbers were found in the kettle-rendered samples. Microscopic examination in each case revealed the presence of the lard stearin in crystals, and in no case were the characteristic beef stearin forms present.

Lard Compounds and Lard Substitutes.—In Table IX are described eleven samples of this kind, sold for what they really were : that is, not pure lard, but fat mixtures resembling lard, and having the same culinary use. They are not adulterated goods, in accordance with provisions *a* and *b*, Section 3, of the Connecticut Pure Food Law of 1895. The prices of these lard substitutes and compounds ranged from 8 to 10 cents per pound.

All of these samples, when tested with Bechi's reagent, formed a mirror of reduced silver and became discolored, acquiring in some cases a dark brown, in others a purple black tint. Previous purification of the lard samples did not change the result.

The lowest iodine number found in any case was 81.5, the highest 92.6. Armour's lard compound, which was formerly so mixed as to have about the same

TABLE VIII.—PURE LARD.

Station No.	Brand.	Dealer.	Price per Pound in Cents.	Chemical Examination.		Microscopic Examination.
				Bechi Test.	Iodine Number	
5294	Butcher's Lard	J. R. Allen, 122 W. Main St., Norwich	10	Colorless.	65.6	Lard Stearin.
5295	" "	Elijah Tracey's Market, Norwich	12	Slight Color.	64.2	" "
5318	" "	E. Dutton, Agt., Winsted	12	Colorless.	56.6	" "
5332	" "	Lockhart's Market, Main Cor. Grand St., Bridgeport	12	"	54.5	" "
5477	" "	Menz Market, 5 Pacific St., Stamford	12	Slight Color.	66.8	" "
5416	" "	W. C. Wade, State St., Hartford	10	Slight Brown.	59.9	" "
5306	Pure Lard, Kettle-rendered, White, Perry & Dexter, Worcester, Mass.	Brainard & Bartlett, Putnam	10	Colorless.	59.1	" "
5305	Pure Leaf Lard, White, Perry & Dexter, Worcester, Mass.	A. L. Allen, Norwich	13	"	60.8	" "
5346	Pure Kettle-rendered Lard, Meriden Provision Co.	West End Cash Market, 453 W. Main St., Waterbury	13	Slight Color.	60.3	" "
5411	Pure Lard, Meriden Provision Co.	J. Kerin, 62 North St, New Britain	10	Colorless.	64.1	" "
5409	" " " "	A. M. Bidwell, 344 Main St., Middletown	12	Slight Brown.	63.9	" "
5331	" " McElroy Bros., Bridgeport	White Front Market, 466 East Main St., Bridgeport	12	Colorless.	62.3	" "
5404	Kettle-rendered Pure Lard, Providence Beef Co.	W. S. Chappell, 148 State St., New London	10	"	65.2	" "
5337	Pure Leaf Lard, F. A. Bartram & Co., Bridgeport	McGraw & Baldwin, White St., Danbury	13⅓*	Slight Color.	58.5	" "
5119	Pure Lard, Plumb & Winton, Bridgeport	Manufacturer	....	Colorless.	65.0	" "
5284	" " C. H. Davis & Co., Norwich	J. A. Turner, Willimantic	10	"	65.6	" "
5391	" " " " "	Bodo Bros., Moosup	9	"	63.4	" "
5009	Choice Leaf Lard, Warranted Strictly Pure, S. E. Merwin & Son, New Haven	Manufacturer	14†	"	64.2	" "
5008	Choice, Strictly Pure Elm City Lard, S. E. Merwin & Son, New Haven	Manufacturer	12†	Light Brown.	66.3	" "
5020	S. E. Merwin & Son, New Haven	J. Casseriego, Shelton Ave., New Haven	12	"	67.7	" "
5010	"Pure" (Red Label), Sperry & Barnes, New Haven	L. D. Chidsey, Church St., New Haven	14†	Colorless.	63.5	" "

* In 3 pound pail. † In 5 pound pail.

TABLE VIII.—PURE LARD—*Continued.*

Station No.	Brand.	Dealer.	Price per Pound in Cents.	Chemical Examination.		Microscopic Examination.
				Bechi Test.	Iodine Number	
5341	"Pure" (Red Label), Sperry & Barnes, New Haven	J. M. Bristol & Son, Central Market, Ansonia	12	Colorless.	59.5	Lard Stearin.
5017	Sperry & Barnes, New Haven	Henry Hahn, 1327 W. Chapel St., New Haven	12	Slight Color.	66.7	" "
5339	Steam Refined Lard, Sperry & Barnes, New Haven	E. D. Booth, 200 Main St., Birmingham	13	Colorless.	63.3	" "
5016	Sperry & Barnes, New Haven	Shelton Ave. Cash Store, 228 Shelton Ave., New Haven	12	Slight Color.	66.4	" "
5013	Sperry & Barnes, New Haven	P. Jente & Bro , Broadway, New Haven	11	" "	64.8	" "
5281	Pure Lard, Comstock, Providence, R. I.	Bert Thompson, Willimantic	12	Slight Color.§	61.6	" "
5113	Pure Leaf Lard, Swift & Co., Chicago	C. E. Hart & Co. 350 State St., New Haven	14	Colorless.	61.6	" "
5110	" " " "	Grand Ave. Market, 830 Grand Ave., New Haven	12	Colorless.§	63.8	" "
5403	Pure Lard, Warranted, J. B. Mason & Sons, Providence	Joseph Kopp, 207 Bank St., New London	10	Colorless.	65.0	" "
5399	Pure Lard, J. B. Mason & Sons, Providence	W. A. Murray, 672 Bank St., New London	10	"	64.0	" "
5340	Warranted Pure Lard, The L. C. Bates Co., New Haven	P. McEnerney, 130 Main St., Birmingham	12	Slight Color.	65.8	" "
5392	Warranted Pure Lard, The L. C. Bates Co., New Haven	Holden Arnold, Willimantic	10	Colorless.	63.4	" "
5327	Warranted Pure Lard, The L. C. Bates Co., New Haven	Smith & Burns, Cor. Liberty and Keeler Sts., Danbury	12	"	62.7	" "
5334	Pure Lard, Lee & Hoyt, New Haven	Kinney's, Bank St., New Milford	13	Slight Color.	63.0	" "
5286	Pure Lard, G. H. Hammond, Indiana	Purinton & Reade, Willimantic	12	Colorless.	66.4	" "
5325	" " "	Chas. Starr, New Milford	13	"	62.9	" "
5479	" " "	Sam'l Comstock, Jr., 72 N. Main St., S. Norwalk	12	"	66.3	" "
5308	Warranted Pure Lard, Robinson Brand, John F. Crocker & Co., Boston	P. M. Leclair, Putnam	10	"	63.6	" "
5285	Pure Lard, North Packing & Provision Co., Boston	H. C. Hall, Willimantic	12	"	66.0	" "

§ After treatment with nitric acid.

TABLE VIII.—PURE LARD—*Continued.*

Station No.	Brand.	Dealer.	Price per Pound in Cents.	Chemical Examination.		Microscopic Examination.
				Bechi Test.	Iodine Number	
5288	Choice Grocery Lard, Strictly Pure, North Packing & Provision Co., Boston	J. S. Hennessy, Willimantic	10	Colorless.	64.5	Lard Stearin.
5280	Pure Lard, John P. Squire & Co., Boston	Frank Larrabee, Willimantic	12	“	65.4	“ “
5480	Best Lard, Absolute Purity, Finest Quality, Geo. C. Napheys & Co., Philadelphia	W. & E. Osterbanks, 53 Main St., Norwalk	11⅔	Slight Color.§	66.3	“ “
5453	Pure Lard, Armour & Co., Chicago	Patrick Costello, 153 Pratt St., Meriden	10	Slight Color.	68.3	“ “
5109	Pure Leaf Lard, Armour & Co., Chicago	Booth Meat Co., 370 State St., New Haven	12	Colorless.	65.7	“ “
5019	Pure Lily Leaf Lard, Nelson, Morris & Co., Chicago	Geo. M. Coombs, Whalley Ave., New Haven	12	“	67.7	“ “
5454	Pure Lard, H. L. Handy, Springfield, Mass.	C. M. Shipple, 141 Turnbull St., Hartford	8	“	65.2	“ “
5410	“ “ “ “ “	Boston Branch Grocery, 238 Main St., New Britain	12	“	66.5	“ “
5287	“ “ J. B. Mason & Sons, Providence	H. Dion, Willimantic	12	“	65.7	“ “
5324		McNamara, 396 E. Main St., Bridgeport	10	“	59.9	“ “
5458		Pacnam & Cook, 26 W. Main St., Meriden	10	Colorless.§	63.2	“ “
5473		Firmey & Benedict, 41 Wall St., Norwalk	12	Slight Color.	62.6	“ “
5457		Wm. J. Cashmann, 133 Pratt St., Meriden	10	“	65.5	“ “
5418		I. W. Buckley, Hartford	12	Colorless.	67.3	“ “
5419	Kettle-rendered Lard	I. C. Duvan, Windsor Locks	12	“	64.2	“ “
5414		H. Jonas, Temple St., Hartford	12	“	64.1	“ “
5483		Geo. A. Ferris, 184 Main St., Stamford	10	Colorless.§	65.5	“ “
5445		John A. Pilgard, 138 Front St., Hartford	10	Colorless.	61.2	“ “
5015		F. H. Kearney, Cor. Congress Ave., and Hill St., New Haven	10	Slight Color.	65.8	“ “
5107		Pagter Bros., 800 Grand Ave., New Haven	12	“	64.5	“ “
5114		Coe & Field, 422 State St., New Haven	10	Slight Color.§	63.8	“ “
5329		T. R. Hoyt & Co., 7 West St., Danbury	12	Colorless.	63.7	“ “
5320		T. Kilmartin, 495 W. Main St., Waterbury	12	“	66.1	“ “
5328		E. L. Sullivan, 436 E. Main St., Bridgeport	10	Slight Color.	66.6	“ “

§ After treatment with nitric acid.

iodine number as pure lard, thus making Hübl's iodine absorption test of no value in detecting the presence of cotton seed oil, is now apparently compounded according to another formula.

The presence of beef stearin was readily detected by the microscope in every instance. Cottolene and cotosuet, which are claimed to be made of cotton seed oil and beef suet and to contain no lard, react like "compound lards" with the reagents mentioned.

Lard Compounds and Imitations, sold as Lard.—In Table X are given analyses of forty-three samples of this class. In every case the purchasing agent asked for lard and there was sold to him an imitation or substitute without any statement or hint that it was not pure lard. The prices paid ranged from seven to twelve cents per pound and averaged 9.3 cents.

Table IX.—Lard Compounds and Lard Substitutes Sold Under Their Trade Names, but not as Pure Lard.

Station No.	Brand.	Dealer.	Price per Pound in Cents.	Chemical Examination.		Microscopic Examination.
				Bechi Test.	Iodine Number	
5117	Refined Lard Compound, N. K. Fairbank & Co.	N. Stein, 811 Grand Ave., New Haven	10	Dark Brown.	91.5	Beef Stearin.
5108	Lard Compound, Armour & Co.	Booth Meat Co., 370 State St., New Haven	8	"	85.8	" "
5115	Superior Lard Compound, Armour & Co., Kansas City	Peoples' Market, 448 State St., New Haven	8	"	83.3	" "
5012	Lard Compound, Nelson, Morris & Co.	J. C. Kelley, Boulevard Cash Store, New Haven	8	"	81.5	" "
5289	Lard Compound, G. H. Hammond	Holden Arnold, Willimantic	8	"	91.1	" "
5290	Superior Compound Lard, Swift & Co., Chicago	A. A. Trudeau, Willimantic	8	"	83.6	" "
5291	Royal Lard Compound, Whitford & Bartlett, Providence, R. I.	Bert. Thompson, Willimantic	8	"	87.1	" "
5116	Lard Compound, Stoddard, Kimberly & Co., New Haven	Geo. W. Cooper, junction Grand Ave. and St. John St., New Haven	10	"	87.6	" "
5112	Lard Compound	D. Dore, 577 Grand Ave., New Haven	10	Purple Black.	84.7	" "
5021	Cotosuet, Swift & Co., Chicago	P. Jente & Bro., Broadway, New Haven	10*	Dark Brown.	85.5	" "
5468	Cottolene, N. K. Fairbank & Co., Chicago	D. M. Welch & Son, Congress Ave., New Haven	8⅛*	"	92.6	" "

* In three pound pails.

TABLE X.—LARD COMPOUNDS SOLD FOR LARD.

Station No.	Dealer.	Price per Pound in Cents.	Chemical Examination.		Microscopic Examination.
			Bechi Test.	Iodine Number.	
5408	J. H. Shieferman, Main St., Middletown	9	Dark Brown.	91.9	Beef Stearin.
5406	W. J. Trevithick, Rapella Ave., Middletown	9	"	91.2	" "
5455	A. D. Cook, 56 Market St., Hartford	10	"	92.3	" "
5456	Chas. S. Kelley, 154 Front St., Hartford	10	"	90.5	" "
5118	Wallace St., next to R. R. Bridge, New Haven	10	"	91.7	" "
5475	Betts & Farrington, Wall St., Norwalk	12	"	93.4	" "
5345	——— 251 S. Main St, Waterbury	10	"	91.8	" "
5398	Wm. S. O'Brien, 729 Bank St., New London	8	"	95.5	" "
5402	S. D. Ameco, 64 Main St., New London	10	"	94.7	" "
5401	Geo. F. Barnstorf, 45 Main St., New London	10	"	86.5	" "
5349	M. M. Smith, Main St., Winsted	8	"	94.4	" "
5336	Mrs. Clancy, 925 Main St., Bridgeport	10	"	89.7	" "
5482	Lorenzo Dibble, N. Main St., S. Norwalk	7	"	95.7	" "
5407	Sam. Kennedy, 648 N. Main St., New Britain	10	"	87.3	" "
5405	Lee Bros. & Co., 500 Main St., New Britain	9	"	92.6	" "
5319	Branch York State Butter Co., 844 Bank St., Waterbury	9	"	87.0	" "
5321	Frank Pepe, 4 Middle St., Waterbury	10	Purple Black.	88.4	" "
5347	——— 843 Bank St., Waterbury	8	Dark Brown.	91.5	" "
5344	Ladd's, 96 S. Main St., Waterbury	10	"	94.6	" "
5342	John B. Vallee, 21 Grand St., Waterbury	10	Purple Black.	92.9	" "
5350	King's Market, Cor. Keeler and Liberty Sts., Danbury	10	Dark Brown.	80.0	" "
5338	P. D. Vroom, 5 Keeler St., Danbury	8	Purple Black.	89.4	" "

Table X.—Lard Compounds Sold for Lard—*Continued.*

Station No.	Dealer.	Price per Pound in Cents.	Chemical Examination.		Microscopic Examination.
			Bechi Test.	Iodine Number.	
5390	Geo. A. Robertson, 70 State St., Bridgeport	9	Purple Black.	87.6	Beef Stearin.
5333	——— 102 N. Washington Ave., Bridgeport	10	Dark Brown.	88.0	" "
5330	J. J. Donovan, Cor. E. Main and Steuben Sts., Bridgeport	9	"	77.1	" "
5326	D. Sullivan, 881 Main St., Bridgeport	10	Purple Black.	91.3	" "
5323	Centennial American Tea Co., 856 Main St., Bridgeport	10	"	90.5	" "
5322	D. Hallett, 470 E. Main St., Bridgeport	10	"	90.5	" "
5348	P. T. Gloster & Co., Main St., Winsted	10	Dark Brown.	90.9	" "
5400	T. Manning, 407 Bank St., New London	10	"	94.5	" "
5111	——— 40 (?) Walnut St., New Haven	10	"	82.4	" "
5011	H. C. Dingwall & Co., 68 Congress Ave., New Haven	9	"	90.1	" "
5459	Russell Bros., 2 Colony St., Meriden	8	"	92.4	" "
5471	New York Cash Grocery, N. Main St., Norwalk	7	"	81.1	" "
5474	W. R. Bates, Norwalk	7	"	94.5	" "
5412	C. H. Russell, New York Butter and Grocery House, 383 Main St., Hartford	9	"	90.2	" "
5415	Joseph Hagarty, 75 Front St, Hartford	10	Purple Black.	91.2	" "
5417	H. Bacharach, 13 Park St., Hartford	10	Dark Brown.	96.0	" "
5451	Foley's Market, 487 Main St., Hartford	10	"	89.6	" "
5452	E. M. Palmer, 124 Albany Ave., Hartford	10	"	89.6	" "
5413	John Bonora, Windsor Locks	10	Dark Green.	87.3	" "
5478	New York Grocery Co., 206 Main St., Stamford	8	Dark Brown.	94.7	" "
5484	A. J. Finney, 202 Main St., Stamford	9	"	96.0	" "
5014	Italian Grocery, cor. Oak and Factory Sts., New Haven	10	"	85.6	" "

EXAMINATION OF PEPPER.

By A. L. Winton.

A considerable part of the chemical work described in this paper was done by Mr. W. L. Mitchell.

Nature of Pepper.—Both the white and the black pepper of commerce are the fruit of *Piper nigrum*, a climbing perennial plant, indigenous to Malabar and cultivated in various other tropical countries.

The berries or peppercorns grow close to the stems in long spikes, twenty to fifty berries in each spike, and change color as they ripen, from green to red and finally to black.

The black peppercorns of commerce are prepared by picking and drying the unripe spikes as soon as some of the berries begin to turn red. During the drying process the berries shrivel somewhat and turn black.

"White peppercorns" are the ripe berries from which the outer shell has been removed. They are grey in color and have a smooth surface. White pepper is not so pungent as the black kind, but is considered by many to have a finer flavor.

Long pepper, although produced by a plant (*Piper longum*) belonging to the same genus as the true pepper, is very different in its looks and flavor. The small berries are very closely crowded together in elongated clusters often an inch or more in length. It has a spicy taste, but none of the fine flavor of true pepper, to which it is sometimes added as an adulterant. Long pepper is apt to have earth adhering to it.

Cayenne, often called "red pepper," is the fruit of several species of *Capsicum* quite similar to our garden peppers and is radically different from the kinds of pepper already named. It is also used as an adulterant of black pepper, to restore the "bite," which has been lost by the addition of tasteless foreign matters.

Pepper is the most important commercially of all the spices and condiments. It is almost entirely imported in the form of peppercorns, which are admitted free of duty.

According to the Report on "Imports for Consumption into the United States, 1894 and 1895," prepared by the Bureau of Statistics, U. S. Treasury Department, 19,937,422 pounds of whole pepper, having a value (at four cents per pound) of

$791,853.93, were brought into the United States during the year 1895. A larger quantity of pepper was imported than of any other single spice or condiment, and the money value of the imported pepper was more than one-third of all unground spices taken together.

Assuming that all this pepper is annually consumed in the country and that Connecticut consumes a quantity proportional to the population (one per cent.), nearly 200,000 pounds must be annually used in the State.

The wholesale price of this, unground, would be nearly $8,000, but the retail price would be $56,000. This does not take into account the enormous quantities of adulterants, for which the consumer usually pays about the same price as for pure pepper.

The Adulteration of Pepper.—Ground pepper, the form in which most of the pepper is sold to consumers, is perhaps the most extensively adulterated of all food products. The list of things which have been used as adulterants includes bran, hulls and other by-products from wheat, maize, rice, oats, buckwheat and other grains, ground linseed, olive and rape seed cake, shells (often roasted or charred) of cocoanut, almonds and other nuts, sawdust, mustard husks, cayenne, long pepper, pepper shells, terra alba.

In order to get a proper mixture of light and dark particles, it is customary to use two or more adulterants, the one dark, the other light-colored; as for example: Roasted cocoanut shells and wheat middlings; buckwheat hulls and buckwheat middlings.

Cayenne reinforces the pungency which has been reduced by dilution. Mustard husks also give a certain "bite" to the mixture.

Wheat or buckwheat middlings furnish adulterants for white pepper which closely resemble the genuine pepper in appearance.

Pepper shells or dust consists of the hulls removed from white pepper with adherent dirt and often other waste material.

EXAMINATION OF SAMPLES OF PEPPER FROM THE CONNECTICUT MARKET.

One hundred and fourteen samples have been bought by our sampling agents from stock sold in bulk as well as in manufacturers' packages. The results of the examinations appear in the following tables and discussion :

METHODS OF EXAMINATION.

Microscopic Examination.—A portion of the sample was first viewed in water with ordinary illumination, using magnifying powers of 74 and 392 diameters. The character and size of the starch granules were noted and the results supplemented by examination with polarized light and also by viewing portions treated with iodine. The foreign tissues could often be identified without use of clearing agents.

The same portion which had been viewed directly was then treated with potash and again examined.

The crude fiber separated in the course of chemical analysis furnished material in which much of the denser tissues, such as "stone cells," was brought out distinctly and could be easily identified. The presence of charcoal or charred shells was also shown in this material, as it remains black after the treatment with acid and alkali, while the tissue of genuine pepper and of most adulterants, even buckwheat hulls, is of a light brown color. The presence of charred material was confirmed by bleaching tests with nitric acid and chlorate of potash.

Chemical Analysis.—Water, ether extract, fiber and ash, were determined by the methods which are used for the analysis of feeding stuffs. The drying in hydrogen was continued until constant weight was secured, which required about eight hours. The loss represents not only water, but also a part of the volatile oil. The extraction with absolute ether was complete at the end of eight hours. The same weighed portion was used for determination of water, ether extract and fiber.

The ether extract from pure pepper consists of piperine and resin, and the former invariably crystallizes out from the resin on cooling; but when the pepper is adulterated with stuff which contains fat or oil, the latter may completely hide the piperine crystals if it does not prevent their forming in the extract. We regard the absence of crystals in the ether extract as certain evidence of adulteration.

If the fat or oil introduced in the adulterant brings up the weight of ether extract to the amount which is found in pure pepper, a nitrogen determination in the extract from 10 grams of pepper will disclose its real nature.

Pure piperine contains 4.91 per cent. of nitrogen, but the ether extract of pepper consists in part of resin, which lowers the percentage considerably. Thus a sample of pure white pepper gave an ether extract containing 3.25 per cent. nitrogen. and of pure black pepper 2.64 per cent. In adulterated samples the ether extract had less than two per cent. of nitrogen.

Adulterated peppers, as a rule, contain: 1. Either less ether extract, or, 2. less nitrogen in the ether extract, or, 3. more fiber, or, 4. more mineral matter than pure ground pepper. It would be difficult to find adulterants which could be used in any considerable quantity and yet fail to be detected by one or more of these tests.

Pure Black Pepper.—In Table XI are grouped all those samples, fifty-nine in number, in which no foreign substance was detected with the microscope and which within reasonable limits agree in chemical composition with samples of undoubted purity.

It is possible that some of these samples are adulterated with

TABLE XI.—PROBABLY PURE BLACK PEPPER.

Station No.	Brand (taken from label on package in which goods were sold).	Dealer.	Price paid per ¼ pound. Cents.	Microscopic Examination.	Chemical Examination.			
					Water.	Ether Extract.	Fiber.	Ash.
	Peppercorns ground at Station.							
5623	West Coast Sumatra Black Pepper		--	Pepper Starch and Tissue	10.33	8.30	11.49	4.85
5631	Singapore Black Pepper		--	" " "	10.74	7.57	12.07	3.74
	Ground Pepper in labeled packages.							
5568	Absolutely Pure Pepper. D. & L. Slade Co., Boston	Holden Arnold, Willimantic	10	" " "	11.24	7,66*	12.48	4.21
5071	Pure Pepper, warranted strictly pure Bennett, Sloan & Co.	Geo. M. Coombs, 195 Whalley ave., New Haven	10	" " "	10.72	7.02	14.30	4.96
5566	S. I. Specially Imported Ground Shot Pepper. Thurber Whyland Co., New York	C. D. Strickland, South Manchester	10	" " "	8.77	6.72	11.39	4.39
5567	Pepper. O. H. Blanchard	H. Dillon, Willimantic	10	" " "	10.18	7.26	13.10	4.71
5569	Genuine Malabar Black Pepper. Bennett, Simpson & Co., London	Waterbury Grocery Co., 163 Bank street, Waterbury	10	" " "	8.69	8.09	12.84	4.65
5570	Pure Pepper. Boardman & Sons., Hartford	J. Kerin, 62 North St., New Britain	10	" " "	10.63	7.84	12.86	4.10
5573	Crescent Mills Pure Pepper. John P. Augur, New Haven	Foote & Westwood, West Main street, Waterbury	10	" " "	10.13	7.65	10.90	3.90
5574	Blue Ribbon Pure Black Pepper. Austin, Nichols & Co., New York	Geo. Farley, Putnam	10	" " "	11.89	8.15	12.72	4.60
5576	Pepper. Lincoln, Seyms & Co., Hartford	E. F. Platt, 37 E. Main St., Waterbury	10	" " "	10.89	7.11	12.85	4.82
5577	Ground Black Pepper, warranted pure. Bryan, Miner & Read, New Haven	P. McEnerney, Main St., Birmingham.	10	" " "	9.36	7.30	12.70	4.17
5581	Pure Black Pepper. Bryan, Miner & Read, New Haven	Holden Arnold, Willimantic	10	" " "	11.18	7.81	15.41	5.23
5583	XXX Pepper. E. R. Durkee & Co., New York	Thomas Nolan 250 Pratt St., Meriden	10	" " "	12.23	7.62	12.84	5.75
5585	Red Shield Pepper. Jas. G. Powers & Co., New York	G. A. Ray, Norwich	9	" " "	11.34	8.33	14.50	5.88
5588	Pure Pepper. Clark, Chapin & Bushnell, New York	R. D. Baldwin, Bridge St., Winsted	10	" " "	10.79	8.33	13.23	5.61

* 2.64% nitrogen in ether extract.

TABLE XI.—PROBABLY PURE BLACK PEPPER—*Continued.*

Station No.	Brand (taken from label on package in which goods were sold).	Dealer.	Price paid per ¼ pound. Cents.	Microscopic Examination.	Chemical Examination.			
					Water.	Ether Extract.	Fiber.	Ash.
5590	Pure Pepper, Adams & Howe, New York	—— 79 White St., Danbury	10	Pepper Starch and Tissue	8.30	8.34	14.48	5.93
5591	Pure Black Pepper. W. H. Mansfield & Co., Putnam, Conn.	W. H. Mansfield & Co., Putnam	10	" " "	11.30	7.96	12.73	4.46
5592	Pure Pepper. Union Spice Co.	Union Pacific Tea Co., 253 Main street, Danbury	10	" " "	11.04	7.79	12.67	5.74
5593	Pure Pepper. Swain, Earle & Co., Boston	James M. Young, Preston	10	" " "	11.00	7.32	12.80	4.22
5595	Strictly Pure Pepper. Barnum & Reed, Danbury	Barnum & Reed, 307 Main St., Danbury	12	" " "	10.26	6.62	13.53	4.68
5596	Strictly Pure Pepper. L. Battey & Son, Moosup	L. Battey & Son, Moosup	8	" " "	9.69	7.09	13.70	3.94
5597	Strictly Pure Pepper. C. H. Lyon, New London	C. H. Lyon, 42 Coit St., New London	10	" " "	10.41	6.76	12.23	3.97
5598	Pepper. Grand Union Tea Co., New York	Grand Union Tea Co., 237 Main street, Birmingham	10	" " "	11.34	8.11	13.63	5.56
5599	Strictly Pure Pepper, Excelsior Mills. A. R. R. Palmiter	George M. Spring, 214 Main St., Birmingham	12	" " "	11.06	8.06	12.60	5.87
5600	Pure Pepper. E. P. Hornick, New York	John P. Murphy, Norwich	10	" " "	10.19	7.46	12.17	5.62
	Ground Pepper sold in bulk.							
5516		—— 793 Bank St., Waterbury	10		10.48	7.70	12.82	5.75
5518		Corkey & Gannon, 29 Main St., New London	8		10.61	7.91	14.22	5.78
5521		—— 152 E. Main St., Bridgeport	10		11.97	8.60	11.83	6.58
5522		Dillon's Cash Grocery Store, 158 Main St., Ansonia	7		10.38	9.09	13.79	5.90
5524		M. Ahern, 160 Pratt St., Meriden	10		11.85	7.57	12.09	4.36
5528		W. H. Brown, Moosup	10		10.18	8.02	11.86	4.45
5529		D. E. Ketcham & Co., 33 Elm St., Danbury	8		11.61	7.34	11.09	4.37
5530		James M. Young, Preston	10		10.84	7.45	13.29	4.21
5532		Fred. H. Lewis, 98 W. Main St., Meriden	8		11.71	7.40	8.57	4.20

Table XI.—Probably Pure Black Pepper—*Continued.*

Station No.		Dealer.	Price paid per ¼ pound. Cents.	Microscopic Examination.	Chemical Examination.			
					Water.	Ether Extract.	Fiber.	Ash.
	Ground Pepper sold in bulk.							
5536		McGraw & Baldwin, White St., Danbury	8		11.30	8.51	11.20	5.39
5538		Purinton & Reade, Willimantic	10		11.58	7.25	14.66	6.12
5539		—— 102 N. Washington Ave., Bridgeport	10		10.71	7.46	13.81	4.41
5540		Johnson's Cash Grocery, Main street, Winsted	10		10.29	7.76	13.44	5.87
5547		H. C. Hall, Willimantic	10		12.13	8.12	12.50	5.02
5551		Keeney Bros.	8		11.31	7.59	12.70	4.57
5552		W. S. Chappell, 148 State St., New London	10		11.21	8.13	11.52	3.79
5553		G. A. Ray. Norwich	5		9.63	8.64	14.13	6.10
5557		P. M. Leclair, Putnam	10		9.37	7.12	13.85	4.57
5558		D. W. Lawton, Main St., Winsted	12		9.47	7.62	13.83	6.00
5559		James Sullivan, Putnam	10		10.31	7.96	11.37	4.99
5560		The Clark & Stevens Cash Grocery, Howe St., Shelton	8		9.80	7.57	12.84	4.21
5562		Putnam Mfg. Co. Stores, Putnam	10		9.17	8.22	12.89	4.97
5563		T. Kilmartin, 495 W. Main St,, Waterbury	9		10.47	8.28	13.70	5.78
5564		M. H. Tilley, Main St., Birmingham	8		9.84	7.40	13.45	4.58
5571		W. A. Murray, 672 Bank St., New London	5		10.51	7.18	13.18	5.20
5507		Finney & Benedict, 41 Wall St., Norwalk	10		11.23	7.46	12.22	4.99
5506		Addison Brown, Norwalk	10		10.76	7.30	13.06	4.15
5504		Betts & Farrington, Norwalk	10		11.02	7.83	12.27	4.77
5067		Henry S. Dailey, 97 Whalley Ave., New Haven	10		11.08	7.86	11.33	4.45
5068		F. H. Kearney, cor. Hill St. and Congress Ave., New Haven	8		10.92	7.20	11.42	4.40
5070		Henry Hahn, 1327 West Chapel St., New Haven	9		10.90	8.00	12.88	4.80
5520		Jacob Walz, 54 Temple St., Hartford	10		11.22	6.59	15.52	6.42
5549		John B. Vallee, 21 Grand St., Waterbury	10		10.23	8.80	12.41	6.30

pepper shells, but not with appreciable quantities of other foreign matters. Twenty-six of these samples were sold in packages bearing the name and address of the manufacturers, and thirty-three were sold by grocers in bulk.

The lowest per cent. of ether extract found in any sample was 6.62. The highest per cents of fiber and ash were 15.41 and 6.42 per cent. respectively.

Adulterated Black Pepper.—In Table XII are given results of examinations of twenty-nine samples of this kind, seven sold in packages bearing the name of the manufacturer or dealer, and twenty-two sold in bulk.

All of these samples were condemned both by the chemical and microscopic investigation. With the microscope one or more of the following things were found in each sample: cayenne, starch, wheat, buckwheat, cocoanut shells, charred matter, sawdust and chaff.

In noting the character of the adulterants, we name in most cases the seed or the article from which the adulterant was derived. It is not always possible to state positively the particular product used. For example: where wheat starch and wheat tissue were identified, we have given wheat as the adulterant without attempting to say whether wheat middlings, wheat flour or wheat bran was used. The buckwheat products used were in some cases largely the black hulls, in others almost entirely the inner seed envelopes with starchy matter.

Whenever cocoanut shells and charred matter were both detected in the same sample, it is probable that the latter was derived from the former, although it was not always possible to identify the cocoanut "stone cells" in the blackened opaque masses.

Generally it is not possible to determine the exact per cent. of adulteration. In some samples, however, there was no evidence that any real pepper was present and the per cent. of ether extract showed that a number of samples did not contain more than 50 per cent. and in two cases not more than 20 per cent. of pure pepper. This does not disclose the full extent of adulteration, as most of the adulterants yield a considerable amount of ether extract.

In the columns giving the results of the chemical analyses, those figures which are abnormal, that is to say below 6.50% for ether extract, or above 16% for fiber, and 6.50% for ash, are printed in heavy faced type.

TABLE XII.—ADULTERATED BLACK PEPPER.

Station No.	Brand (taken from label on package in which goods were sold).	Dealer.	Price paid per ¼ pound. Cents.	Microscopic Examination—Adulterants detected.	Chemical Examination.			
					Water.	Ether Extract.	Fiber.	Ash.
	Ground Pepper in labeled packages.							
5572	First Quality Black Pepper	W. K. Spencer, 96 Main St., Middletown	8	Farinaceous Matter	8.72	**4.99**	15.97	6.43
5575	Strictly Pure Black Pepper. Stocker & Brill, Newburgh, N. Y.	—— 79 White St., Danbury	10	Buckwheat, Wheat, Cocoanut Shells	10.54	**5.33**	**19.42**	**8.63**
5578	Pepper. E. B. Worthington, Norwich, Conn.	A. L. Allen, Norwich	10	Buckwheat, Wheat	8.50	**4.45**	**21.14**	4.42
5584	XX Pepper. The Challenge Mills, New York	A. J. Hopkins, Boston Branch, Norwich	10	Buckwheat, Cocoanut Shells, Charrod matter, Cayenne	8.96	**5.45**	**26.63**	4.02
5594	Pure pepper. E. S. Kibbe & Co., Hartford	S. E. Amidon, Willimantic	10	Buckwheat, Wheat, Cocoanut Shells, Charred matter, Cayenne	8.70	**4.59**	**18.34**	3.93
5601	A. & P. Pepper. Sultana Spice Mills	Atlantic and Pacific Tea Co., 269 East Main St., Bridgeport	15	Buckwheat, Wheat, Cocoanut Shells, Charred matter	9.92	**4.94**	14.06	3.91
5602	Windmill Brand Black Pepper. Loudon & Johnson, 181 Chambers St., New York	Ernest Glaeser, Rockville	8	Wheat, Sawdust, Cocoanut Shells, Charred matter	9.46	**4.16**	**21.67**	**7.60**
	Ground Pepper in bulk.							
5069		Keating's Store, cor. Oak and York Sts., New Haven	9	Wheat, Cayenne	10.49	**3.27**	13.72	**6.71**
5106		D. Dore, 377 Grand Ave., New Haven	5	Wheat	11.00	**5.24**	**16.80**	**8.19**
5450		B. Fowler, 6 High St., Hartford	10	Buckwheat, Wheat, Cocoanut Shells, Charred matter, Cayenne	8.09	**6.32***	**22.28**	4.17
5487		Geo. A. Ferris, 184 Main St., Norwalk	7	Buckwheat, Cayenne	9.64	7.90†	15.88	5.54
5503		N. Y. Cash Grocery, 206 Main street, Stamford	7	Wheat, Grain Hulls, Cocoanut Shells, Charred matter, Cayenne	8.61	**3.63**	**22.67**	**12.31**
5505		N. Y. Grocery Co., 15 N. Main St., S. Norwalk	8	Wheat, Grain Hulls, Cocoanut Shells, Charred matter, Cayenne	8.01	**3.68**	**23.01**	**12.18**

* 1.35% Nitrogen in Ether Extract.

† 1.88% Nitrogen in Ether Extract.

TABLE XII.—ADULTERATED BLACK PEPPER—*Continued.*

Station No.	Brand (taken from label on package in which goods were sold).	Dealer.	Price paid per ¼ pound. Cents.	Microscopic Examination—Adulterants detected.	Chemical Examination.			
					Water.	Ether Extract.	Fiber.	Ash.
	Gronnd Pepper in bulk.							
5514		F. W. Tracey, Preston	10	Wheat, Grain Hulls, Cocoanut Shells, Charred matter	9.55	**3.09**	**17.06**	3.71
5517		Kinney's, Bank St., New Milford	10	Wheat (cracker crumbs), Cayenne	10.03	**4.41**	14.69	5.65
5519		Wm. W. Blakeman, Derby Junction	8	Wheat, Cocoanut Shells, Charred matter, Cayenne	9.45	**5.12**	**23.62**	4.48
5523		—— 191 East Main St., Bridgeport	10	Buckwheat, Wheat, Cocoanut Shells, Charred matter	9.67	**5.24**	**23.64**	3.81
5526		D. Hallett, 470 E. Main St., Bridgeport	8	Buckwheat Hulls, Cayenne	10.41	**2.09**	**27.04**	**7.37**
5531		Mrs. J. McGovern, 122 N. Washington Ave., Bridgeport	8	Buckwheat Hulls, Cayenne	10.96	**1.40**	**27.71**	**7.81**
5534		A. J. Hopkins, Boston Branch, Norwich	10	Buckwheat, Cocoanut Shells, Charred matter, Cayenne	8.46	**5.51**	**23.84**	6.05
5537		—— 87 White St, Danbury	7	Wheat (cracker crumbs), Cayenne	9.98	**4.36**	11.29	6.13
5541		C. A. Allison, 31 Main St., Middletown	10	Wheat, Grain Hulls, Cocoanut Shells, Charred matter	9.60	**2.71**	15.24	3.95
5544		Joseph Connor & Sons, Norwich	10	Buckwheat, Cocoanut Shells, Charred matter, Cayenne	7.74	**4.08**	**27.59**	5.35
5546		J. B. Sullivan, cor. E. Main and Steuben Sts., Bridgeport	10	Buckwheat Hulls, Cayenne	10.96	**1.38**	**26.42**	**8.83**
5548		Sam'l Z. D. Durand, 183 Main street, Birmingham	10	Wheat	10.04	**5.74**	15.85	**6.80**
5550		Morris Sheild, 142 Main St., Birmingham	5	Wheat, Cocoanut Shells, Charred matter, Cayenne	8.49	**5.38**	**25.04**	4.05
5555		Foote Bros., W. Main St., Waterbury	10	Wheat, Cocoanut Shells, Charred matter, Cayenne	8.34	**3.52**	**18.96**	4.22
5556		E. A. Fitch, 64 Broadway, Norwich	10	Wheat, Cocoanut Shells, Chaffy matter, Cayenne	9.41	**3.05**	**20.01**	3.42
5565*		A. L. Allen, Norwich	10	Buckwheat, Wheat	12.01	**6.35**	7.97	4.56

* 1.35% Nitrogen in Ether Extract.

In eight samples the percentage of all three constituents was beyond the standard limits. The same was true in 14 cases of two constituents and in five cases of one constituent.

Only one sample, No. 5487, was not condemned by any of these three determinations, but the ether extract from this showed no crystals of piperine and contained but 1.88% of nitrogen.

Two samples of buckwheat middlings analyzed at this Station (see Report for 1886, p. 111 and for 1888, p. 152) contained 7.55% and 8.06% respectively, of ether extract. A pepper may have the normal percentage of extract and yet be grossly adulterated with this product. Fortunately we have other means for detecting the admixture with certainty.

Black Pepper Suspected of Adulteration.—In Table XIII are included four samples of this class from packages bearing the name of the manufacturer or dealer, and eight sold in bulk.

No foreign matters were detected in these samples by the microscope, but chemical analysis indicates either the addition of pepper shells, or that the samples were ground from uncleaned peppercorns.

An analysis of a sample of "pepper shells" offered to the "trade" at one and three-quarter cents per pound in 25 ton lots, is given below, together with an analysis of long pepper.

	Station No.	Water.	Ether Extract.	Fiber.	Total Ash.	Sand.
Pepper shells or dust	5630	8.36	6.98	22.88	9.19	2.28
Long pepper, ground at the Station	5634	9.87	7.24	7.38	8.10	.55

TABLE XIII.—BLACK PEPPER SUSPECTED OF ADULTERATION.

Station No.	How sold.	Price per ¼ pound. Cents.	Chemical Examination.				
			Water.	Ether Extract.	Fiber.	Ash. (Total.)	Sand.
5589	In labeled package	10	8.54	8.18	**16.63**	**6.61**	1.75
5587	" " "	10	10.73	**6.43**	**17.62**	**6.67**	1.00
5580	" " "	10	11.73	6.77	15.66	**7.30**	1.43
5579	" " "	8	10.91	7.96	15.17	**6.95**	1.35
5561	In bulk	8	10.21	8.16	**16.97**	**7.85**	1.91
5535	" "	10	10.51	7.34	**18.87**	**6.90**	1.05
5525	" "	7	10.54	6.96	**20.29**	**6.56**	.88
5533	" "	8	10.48	**5.14**	**20.27**	**6.83**	1.04
5554	" "	10	10.42	7.43	14.01	**6.82**	1.70
5543	" "	10	10.07	7.85	12.32	**7.15**	1.80
5515	" "	6	11.32	9.41	14.09	**6.56**	1.35
5527	" "	10	10.21	7.59	12.56	**7.03**	2.10

White Pepper, Pure and Adulterated.—In Table XIV are given analyses of seven samples of white pepper, two of which are adulterated.

To recapitulate: 102 samples of pepper have been examined.

64	samples were probably pure pepper.
12	samples were suspected of adulteration.
31	samples were certainly adulterated.
107	

About 66 per cent. of the samples in packages were pure, about 52 per cent. of samples sold in bulk were pure.

TABLE XIV.—WHITE PEPPER, PURE AND ADULTERATED.

Station No.	Brand.	Dealer.	Price paid per ¼ pound. Cents.	Microscopic Examination.	Chemical Examination.			
				Adulterants detected.	Water.	Ether Extract.	Fiber.	Ash.
	Peppercorns ground at the Station.							
5633	Singapore White Pepper			Pure	11.88	**7.07**	3.65	.99
5632	Siam White Pepper			Pure	11.73	6.80	4.16	1.69
	Ground Pepper in labeled boxes.							
5766	White Pepper. Absolutely Pure. D. & L. Slade & Co , Boston			Pure	12.31	*6.58	3.32	1.70
5586	Pure White Pepper. Packed expressly for Hills & Co., Hartford	Hills & Co., 368 Asylum St., Hartford	10	Pure	10.93	7.45	4.13	1.93
5582	White Pepper. Strictly Pure. Stocker & Brill, Newburgh, N. Y.	—— 79 White St., Danbury	10	Wheat	12.57	**3.62**	2.27	.68
	Ground Pepper in bulk.							
5545		Murray & Dorsey, 4 Truman St., New London	9	Pure	11.90	6.98	3.74	3.14
5542		Waterbury Cheap Grocery, 171 S. Main St., Waterbury	6	Buckwheat, Cayenne	9.40	†7.14	3.64	5.57

* 3.25 per cent. nitrogen in ether extract.

† 0.59 per cent. in ether extract.

MUSTARD.

By A. L. Winton.

A portion of the chemical work described in this paper was done by Mr. W. L. Mitchell.

The genuine mustard of commerce is made chiefly, if not wholly, from the seeds of the black mustard (*Brassica nigra*), and white mustard (*Brassica alba*).

Cabbage, cauliflower, turnip and other well known plants belong to the same genus, *Brassica*, and their seeds are like those of the mustards in form and structure.

Black mustard seed is about as large as dust shot, and varies in color from light brown to black. When rubbed up with water there is formed the volatile oil of mustard, which has a penetrating and highly pungent odor as well as taste.

White mustard seed is several times as large as seed of the black species, has a buff color, and when pulverized and moistened emits no odor of mustard oil, but has a sharp, acrid taste.

The pure ground mustard of commerce consists of the ground seed of one, or of a mixture of both the black and white species, the husks being separated by bolting. Oftentimes a portion of the fatty oil of the seed is extracted, as the pungency is not thereby affected and the mustard meal is said to keep better.

Adulterations of Mustard.—The common adulterants of mustard are make-weights: such as starchy matters (wheat flour, etc.) and plaster or terra alba—and coloring matters: such as turmeric and Martius' yellow.

The use of flour in mustard has been defended on the ground that pure mustard does not keep well and is too pungent for ordinary use.

To color mustard, turmeric is generally used. It is prepared from the root of a plant allied to ginger, and its bright yellow color and spicy taste make it sought after for the purpose.

The use of Martius' yellow is objectionable, as it is distinctly poisonous.

These dyes hide the presence of white adulterants and have a brilliant yellow color. The natural color of pure ground and hulled mustard seeds is, however, a very pale yellow.

Examination of Samples of Mustard from the Connecticut Market.

Methods.—Ash or mineral matter was determined by direct incineration.

Turmeric was detected by its characteristic color reaction with ammonia. The method given in Allen's Commercial Organic Analysis, Vol. III, Part 1, p. 154, was followed in testing for Martius' yellow.

Starch was detected by microscopic examination.

Pure Uncolored Mustard.—In Table XV are included 15 samples of this kind. These samples were not only free from starchy and mineral adulterants, but contained no coloring matter foreign to the mustard seed. They were without exception of a dull yellow color and contrasted strongly with the vivid yellow of mustards dyed with turmeric or Martius' yellow. The per cent. of ash ranged from 4.20 to 7.82.

Mustard Artificially Colored.—Table XVI includes 24 samples of this class in which no foreign matter, except coloring, was detected. Martius' yellow was present in four samples, turmeric in the remaining 20 samples.

Mustard Adulterated or "Compounded" with Starchy Matter or Gypsum.—There are grouped under this head in Table XVII "mustards," 30 in number, in which either flour or plaster was present in considerable quantity. Three of these, Nos. 5665, 5666 and 5672, were conspicuously labeled mustard on the broader sides of the boxes, and on one of the narrower sides it was stated, in much smaller type and in the words given in the table, that the article is a compound.

Of the 30 samples examined, 26 contained considerable quantities of wheat flour or other starchy matter and four were adulterated with gypsum or terra alba. Twenty-four were colored with turmeric, four with Martius' yellow and two appeared to be colored, although no dye was identified. Eleven were in labeled boxes, the remainder sold in bulk.

The quantity of lime present was determined in the four samples adulterated with gypsum and the equivalent sulphate of lime (anhydrous) ranged from 12.97 to 15.34 per cent., but the actual percentage of adulterant present was probably greater, owing to combined water.

TABLE XV.—PURE UNCOLORED MUSTARD.

Station No.	Brand.	Dealer.	Price paid per ¼ pound. Cents.	Ash.
	In labeled packages.			
5775	Oxford Mustard, Absolutely Pure, D. & L. Slade Co., Boston	Lorenzo Dibble, N. Main St., S. Norwalk	10	6.28
	In bulk.			
5664		W. S. Chappell, 148 State St., New London	13	4.73
5691		P. T. Gloster & Co., Winsted	10	5.94
5694		T. Kilmartin, 495 W. Main St., Waterbury	13	6.51
5074		Keating's Store, Cor. York & Oak Sts., New Haven	9	5.62
5659		Keeney Bros., Rockville	10	7.79
5073		Henry Hahn, 1327 W. Chapel St., New Haven	9	5.57
5075		F. H. Kearney, Cor. Congress Ave. and Hill St., New Haven	10	7.78
5640		Beckwith & Keefe, 125 Bank St., New London	10	6.20
5646		J. E. St. John, Bank St., New London	10	6.63
5682		Village Store Co., East Main St., Bridgeport	6	5.60
5681		McGraw & Baldwin, White St., Danbury	12	5.93
5677		James Sullivan, Putnam	10	4.20
5675		P. M. LeClair, Putnam	10	6.48
5647		W. H. Brown, Moosup	10	7.82

Table XVI.—Mustard Artificially Colored—Otherwise Pure.

Station No.	Brand.	Dealer.	Price paid per ¼ pound. Cents.	Ash.	Color.
	In labeled packages.				
5645	Pure Durham Mustard, Howard & Co. Guaranteed absolutely pure	T. W. Potter, 72 State St., New London	10	6.00	Martius' yellow.
5638	Pure Mustard, Boardman & Sons, Hartford	J. Kerin, 62 North St., New Britain	15	5.89	Turmeric.
5650	Strictly Pure Mustard, L. Battey & Son, Moosup	L. Battey & Son, Moosup	10	6.27	“
5654	Pure Mustard, J. H. Beard, Full Weight	Shelton Cash Store, J. H. Beard, Prop., 476 Howe Ave., Shelton	9	4.73	“
5669	Mansfield's Pure Mustard, W. H. Mansfield & Co., Putnam	Mansfield & Co., Putnam	10	7.11	“
5670	Gauntlet Brand Mustard, E. R. Durkee & Co., New York	G. A. Ray, Norwich	10	5.30	“
5680	Pure Mustard, Union Spice Co.	Union Pacific Tea Co., 253 Main St., Danbury	10	5.60	“
5700	Mustard, O. H. Blanchard, All goods bearing my trade mark strictly pure	Joseph Copland, Cor. North and Clark St., New Britain	10	5.73	“
5643	Pure Mustard, Warranted strictly pure, Bennett, Sloan & Co., New York	Wm. S. O'Brien, New London	10	4.19	“
5652	Mustard, Grand Union Tea Co., New York	Grand Union Tea Co., 237 Main St., Birmingham	10	6.58	“
	In bulk.				
5653		Dillon's Cash Grocery Store, 158 Main St., Ansonia	7	5.42	“
5657		Morris Sheild, 142 Main St., Birmingham	5	4.98	“
5688		D. W. Lawton, Main St., Winsted	12	6.29	“
5686		Stevens' Cash Grocery, 398 E. Main St., Bridgeport	8	5.94	“
5679		Barnum & Reed, 307 Main St., Danbury	12	5.52	“
5678		John P. Murphy, Norwich	10	5.46	“
5662		F. W. Tracy, Preston	10	5.76	“
5648		W. N. Arnold, Danielson	10	7.15	“
5649		Perkins & Bliss, Willimantic	10	7.11	“
5656		Sam'l Z. D. Durand, 183 Main St., Birmingham	10	7.44	“
5703		A. D. Cook, 56 Market St., Hartford	8	5.85	“
5660		Purinton & Reade, Willimantic	12	6.19	Martius' yellow.
5690		——— 793 Bank St., Waterbury	10	5.84	“
5701		Boston Branch Grocery, 238 Main St., New Britain	10	6.20	“

Table XVII.—Mustard Adulterated or "Compounded" with Starchy Matter or Plaster.

Station No.	Brand.	Dealer.	Price paid per ¼ pound Cents.	Ash.	Coloring.	Adulterants detected.
5685	A. & P. Mustard, Sultana Spice Mills	Atlantic & Pacific Tea Co., 269 E. Main St., Bridgeport	15	3.96	Turmeric.	Starchy matter.
5639	Celebrated English Mustard, Cole & Firth, London	Murray & Dorsey, 4 Truman St., New London	10	9.14	"	" "
5692	Crescent Mills Pure Mustard, Warranted Pure, John P. Augur, New Haven	Foote & Westwood, W. Main St., Waterbury	15	3.98	"	" "
5651	Mustard, Lincoln, Seyms & Co., Hartford. All goods bearing our signature are strictly pure and warranted	E. F. Platt. 37 E. Main St., Waterbury	15	20.08*	"	Sulphate of lime or plaster.
5693	London Mustard. Warranted extra strong	Johnson's Cash Grocery, Main St., Winsted	12	3.32	"	Starchy matter.
5683	Selected Mustard	Kinney's, Bank St., New Milford	10	3.44	"	" "
5671	Pure Mustard, Alert Mills, New York	W. H. Cardwell, Norwich	15	10.62†	"	Lime and starchy matter.
5674	Pure Mustard, Packed for Hills & Co., Hartford	Hills & Co., 368 Asylum St., Hartford	10	17.68‡	"	Sulphate of lime or plaster.
5665	Colman's Mustard, Mfd. in England, warranted to be the finest mustard compound	Frank Larrabee, Willimantic	15	3.94	?	Starchy matter.
5672	Keene's Mustard, London. This is an admixture in which no injurious ingredients are used	W. H. Cardwell, Norwich	17	3.49	?	" "
5666	Colburn's A Mustard. The A. Colburn & Co., Philadelphia. The finest compound for table or medicinal use	A. A. Trudeau, Willimantic	12	4.17	Turmeric.	" "
5705		F. H. Lewis, 98 W. Main St., Meriden	10	4.06	"	" "
5702		Jacob Walz, 54 Temple St., Hartford	10	3.55	"	" "
5699		Jos. Copland, Cor. North & Clark Sts., New Britain	10	4.18	"	" "
5698		C. A. Allison, 31 Main St. Middletown	10	4.24	"	" "
5695		Foote Bros., W. Main St., Waterbury	10	4.93	"	" "
5689		King & Gay, Main St., Winsted	12	2.20	"	" "
5687		Wilcox & Adams, Main St., Winsted	10	3.99	"	" "
5641		W. A. Murray, 672 Bank St., New London	10	2.42	"	" "
5676		Joseph Connor & Sons, Norwich	10	2.93	"	" "
5661		E. A. Fitch, 64 Broadway, Norwich	15	3.79	"	" "
5658		H. W. Steele & Co, Main St., Birmingham	9	3.98	"	" "
5655		Wm. W. Blakeman, Derby	10	5.75	"	" "
5642		S. D. Amico & Co., 64 Main St., New London	10	4.61	"	" "
5673		Morse Mills Store, Putnam	10	4.87	"	" "
5684		W. S. Cornwall, 173 E. Main St., Bridgeport	10	4.31	Martius' yellow.	" "
5696		Thos. Walsh, 486 Main St, Middletown	8	4.49	"	" "
5704		M. Ahern, 160 Pratt St., Meriden	10	4.04	"	" "
5697		J. B. Patterson, 110 Main St., Middletown	10	19.64§	Turmeric.	Sulphate of lime or plaster.
5072		Henry S. Dailey, 97 Whalley Ave.. New Haven	10	21.10‖	"	" " "

* Of which 6.18 per cent. calcium oxide, equivalent to 15.03 per cent. calcium sulphate. † Of which 4 41 per cent. calcium oxide (not as sulphate).

‡ Of which 6.10 per cent. calcium oxide, equivalent to 14.83 per cent. calcium sulphate. § Of which 6.30 per cent. calcium oxide, equivalent to 15.34 per cent. calcium sulphate. ‖ Of which 5.34 per cent. calcium oxide, equivalent to 12.97 per cent. calcium sulphate.

CHEESE.

By A. L. Winton.

Seventy-two samples of cheese have been examined with special reference to the possible presence of oleo-oil, which is said to be extensively used as a "filler." "Filled cheese" is made from an emulsion of oleo-oil and skim-milk.

In none of the samples was the presence of oleo or other foreign fats discovered.

Method of Examination. Volatile fatty acids were determined in the fat obtained from the cheese by grinding with anhydrous copper sulphate and extracting with ether, as directed for the determination of fat in cheese by Short's method.*

If desired, the percentage of fat and the volatile acids in the fat may be determined in one weighed portion, thus ascertaining whether the cheese was made from whole or skim milk, and whether or not it has been "filled." As there is no restriction on the sale of skim milk cheese in Connecticut, the percentage of fat was disregarded.

In order to have sufficient material for two extractions, 20 grams of cheese and 40 grams of anhydrous copper sulphate were ground to a powder. It was found necessary to perform this operation soon after receiving the samples, as cheese open to the air soon dries and becomes hard and horny; and on the other hand, if kept in a closed jar it moulds. The ground mixture of cheese and copper salt, however, keeps indefinitely, and the subsequent processes may be carried out whenever convenient.

The extract (corresponding to 10 grams of cheese) was collected in a tared flask so that after removal of the ether the weight of the extract could be taken. If more than 2.5 grams were obtained, a portion was removed. In the cases of skim milk cheeses the extract weighed less than 2.5 grams, but was sufficient for the determination of volatile fatty acids, being in all cases more than 1 gram.

The Leffmann & Beam modification of the Reichert process was employed,† using half quantities of reagents to correspond with the half quantity of fat taken. The saponification was carried out in the flasks used for the extraction.

The names and addresses of the dealers from whom samples were obtained are given in the following list. The prices paid ranged from 10 to 18 cents per pound.

Ansonia, W. H. Bronson, 234 Main St.; York State Butter Store, 176 Main St.

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* U. S. Dept. Agr. Div. Chem. Bull. **43**, 371.

† Analyst, 1891, XVI, 153.

Birmingham, H. W. Steele & Co., 99 Main St.; D. M. Welch & Co., Main St.

Bridgeport, Geo. A. Robertson, 70 State St.; New York Butter House, 12 Fairfield Ave.

Colchester, W. S. Curtis, Broadway.

Collinsville, N. Bachand.

Danbury, York State Butter House, Main St., Danbury; Butter Store, 43 White St.

Danielson, A. H. Armington, Railroad Sq.; Waldo Bros., Main St.; W. N. Arnold, Main St.

Hartford, W. W. Walker, 269 Main St.; John A. Pilgard, 138 Front St.; M. J. Feeley, 26 Front St.

Manchester, Fitch & Drake.

Meriden, D. C. Huggins & Co., 31 E. Main St.; Russell Bros., N. Y. Butter and Grocery Store; E. O. Chapman, 64 E. Main St.

Middletown, B. Carbo, Rapello Ave.; Gardner, 121 Main St.

Naugatuck, C. N. Todd's Cash and Exchange Store; Dillon's Cash Grocery Store.

New Britain, Boston Branch Grocery, 238 Main St.; Vermont Butter Store, Main St.; Wm. Cowlishan, 420 Main St.

New Haven, John Franklin, 71 Nash St.; M. C. Dingwall, 66 Congress Ave.; McGovern Bros., 1037 State St.; Broadway Butter Store, 153 Broadway; A. Duhan, 1134 State St.; New Haven Butter Store, 116 Congress Ave.; D. M. Welch & Son, Congress Ave.; D. Dore, 579 Grand Ave.; Butter Store, 391 Grand Ave.; C. T. Downes & Son, 1 Broadway.

New London, Thos. W. Gardner, State St.; M. Pick, 6 Main St.; Chappell, 148 State St.; J. E. St. John, Bank St.

Norwalk, The New York Grocery, Main St.; W. R. Bates, Main St.

Norwich, Bailey & Connell, 40 Broadway; C. W. Hill, Franklin St.; Appley & Jordan, 88 W. Main St.; Somers Bros., 224 Main St.

Plainfield, Walter Tillinghast, Main St.; Kingsley's Store.

Putnam, Brainard & Bartlett, 72 Main St.; W. H. Mansfield & Co.

Rockville, L. Young; Union St. Grocery, 30 Union St.

S. Norwalk, Lorenzo Dibble, N. Main St.

Stonington, James Pendleton, Water St.

Thompsonville, Henry King.

Torrington, The Torrington Coöperative Co., 47 Main St.; Philip Aperion, S. Main St.; G. S. Weeks, 184 Main St.

Wallingford, M. N. Brainerd; F. H. Smith; W. Murray.

Warehouse Point, Aaron Smith.

Waterbury, Brownell, Boston Butter House, 147 S. Main St.; Branch of York State Butter Co., 844 Bank St.; L. P. & A. M. Guilfoile, 777 Bank St.

Willimantic, H. C. Hall, 17 Union St.; Bert Thompson, 798 Main St.; Holden Arnold, 999 Main St.

Windsor Locks, Ed. Coogan.

EXAMINATION OF COFFEE.

By A. L. Winton.

Coffee is the seed of a small tree whose fleshy fruit is about the size of a small cherry and contains two seeds joined on their flat sides, which when freed from the pulp and the enveloping membrane are the coffee "beans" of commerce.

The money value of coffee annually imported into this country exceeds that of any other single import, except possibly sugar.

During the year ending June 30, 1895, 532,938,473 pounds were imported, having a wholesale value (at a little over 16 cents per pound) of $87,372,901.61. The imports of ground chicory during the same year amounted to 9,544,186 pounds, and were valued (1.7 cents per pound) at $158,142. In addition to the above, 463,579 pounds of unground chicory and 2,807,360 pounds of dandelion root and other coffee substitutes came into the country.

Adulterants of Coffee.

Among the materials which, either dried or roasted, have been used to mix with and adulterate pure coffee are the following: roots of chicory, dandelion, beets and carrots; wheat, rye, barley and other grains; peas, beans and other leguminous seeds; acorns; figs; imitation coffee, sometimes moulded into artificial beans, sometimes in masses, granules, etc.

Examination of Samples Purchased in Connecticut.

One hundred and twenty-four samples collected by the Station agents have been examined. These may be classified as pure and adulterated ground coffee, coffee substitutes and compound coffees. All were in the roasted state.

Methods of Examination.

By careful sorting, the adulterants in whole coffee were readily separated and in some cases the percentage of adulteration was determined. Microscopic examination of the foreign material was necessary in order to positively determine its nature.

Fragments of foreign material may usually be recognized without the aid of a lens and picked out from adulterated coffee after it has been ground to the usual degree of fineness. This preliminary examination is greatly facilitated by separating the finer from the coarser material by means of a sieve.

Another easy method of separation is to shake a portion of the sample with cold water. The particles of coffee for the most part float, whereas the common adulterants sink.

Material of suspicious character, separated by either of the methods just named, was examined microscopically to fully determine its nature.

Fragments which, from their sweet taste and the color imparted to water were believed to be chicory, were usually found under the microscope to have the pitted ducts and other characteristic tissues of chicory. No attempt was made to distinguish between chicory and the other roots which often are used as an adulterant of, or substitute for, chicory. The term "chicory," as used in this paper, refers to what is known in the trade under that name.

In order to identify the various leguminous seeds, the size and form of the palisade and "supporting" cells of the hull were observed either in sections or, more conveniently in my experience, in portions which had been heated on a slide for a short time with dilute potash and gently crushed with a cover glass. By this latter method, after a few preliminary tests to get potash solution of the proper concentration and to heat for the proper length of time, cells of both layers were easily isolated without being seriously altered in size and form. The palisade cells when thus detached rested on their sides, and with proper care many of the "supporting" cells were in the same position so that it could be seen whether they were prismatic (as in the bean) or spool-shaped, as in most other legumes.

It was difficult and sometimes impossible to distinguish fragments of wheat kernels from rye, either by the shape of the fragments, size of starch granules or cell structure, because these characters had been obscured or wholly destroyed by roasting.

It was not always possible to determine the kind of starch present in the imitation coffee, described on page 54, because the granules were often distorted as if they had been heated. The presence of vegetable hairs and fragments of tissue, however, aided identification.

Unground Coffee.

Although the larger part of the coffee on sale in this State is in the bean, still only a few purchases of the unground coffee were made since in many of the stores visited by the Station's agents the coffee was found on inspection to be of undoubted purity.

Pure unground coffee.—Two samples of genuine coffee beans were purchased in labeled packages as follows:

5987. Union Club Coffee, Lincoln, Seyms & Co., Hartford. Bought of A. Wilson, Norwich, 38 cents per pound.

6006. Winslow, Rand & Watson's Red Label Java and Mocha Coffee. Bought of Carten Tea Co., Bridgeport.

The remainder of the samples of genuine coffee beans were bought of the following dealers, the price ranging from 25 to 38 cents per pound:

The Original India Tea Co., *Bridgeport.* N. Bachand, Chas. McAleer, Frank Perri, *Danbury.* Waldo Bros., *Danielson.* M. J. Feeley, Mrs. Kramer, *Hartford.* Bissell & Brough, *Manchester.* Lane & Peters, *Milford.* Unite L. Frank Tea Co., Frank E. Hull, Store 1152 State St., New England Tea Co., H. Frank & Son, *New Haven.* Thomas & Gumble, Store junction Bank and Truman Sts., Corkey & Gannon, Keefe & Davis, M. Winslow Dart, *New London.* Brainard & Bartlett, *Putnam.* L. Young, *Rockville.* D. S. Davenport, Brown & Wilcox, *S. Norwalk.* Moses Pendleton, *Stonington.* J. F. O'Hear, M. Mitchell, *Thompsonville.* W. Murray, *Wallingford.* Aaron Smith, *Warehouse Point.* The N. Y. and China Tea Co., *Waterbury.* S. E. Amidon, Bert Thompson, *Willimantic.*

Adulterated unground coffee.—Eleven samples were purchased, and the results of their examination are given in Table XVIII. The adulterants detected were chicory, crushed and roasted peas and lumps of "imitation coffee."

By the term imitation coffee we refer to certain masses of brown, starchy material sometimes found in adulterated coffee. These are made chiefly of wheat flour or middlings mixed sometimes with pea hulls or pea meal. This mixture, in form of a paste, is apparently moulded in sticks or cylinders about half an inch in diameter, which after drying can be crushed or ground with the coffee.

Imitation coffee, moulded in form of coffee beans, instead of sticks, has not been found in any samples which we have examined.

In general, the presence of the adulterants which we have encountered in whole coffee would hardly escape the notice of the careful observer, if he had opportunity to glance at the mixture before it was ground, an opportunity which, in the experience of our sampling agents, is not always accorded to him.

GROUND COFFEE.

Pure Ground Coffee.—In Table XIX are given five brands of pure ground coffee which were sold in sealed and labeled packages.

Only two samples of pure ground coffee sold in bulk were found on sale. These were purchased of James Pendleton, Water St., Stonington (34 cts. per pound), and Chappell's Store, 148 State St., New London (38 cts. per pound).

TABLE XVIII.—ADULTERATED WHOLE OR BROKEN COFFEE, SOLD IN BULK.

Station No.	Dealer.	Adulterants Detected.	Price per Pound. (Cents.)
5973	F. W. Miner, Wallingford	‡Peas, chicory	25
6011	C. T. Downes & Son, 1 Broadway, New Haven	‡Peas, chicory	25
6004	A. Duhan, Cedar Hill Cash Grocery, 1134 State St., New Haven	26% peas, 19% chicory	25
6009	*M. C. Dingwall, 66 Congress Ave., New Haven	Chicory, "imitation coffee"	20
6003	John Franklin, 71 Nash St., New Haven	42% chicory and "imitation coffee"	25
5983	R. A. Nichols, 60 Courtland St., Bridgeport	‡Peas, chicory, "imitation coffee"	25
5997	F. M. Miller, 38 W. Main St., Meriden	23% peas, 45% chicory and "imitation coffee"	25
5994	Geo. W. Gates, Main St., Windsor Locks	24% peas, 31% chicory and "imitation coffee"	25
5989	†Doran's Cash Grocery, 150 Main St., Danbury	14% peas, 21% chicory and "imitation coffee"	24
6002	New Haven Provision Co., 398 Grand Ave., New Haven	12% peas, 22% chicory and "imitation coffee"	25
5979	Walter Tillinghast, Plainfield	‡"Imitation coffee"	25

* Coffee sold for Coffee Screenings. Was almost as fine as ground coffee. † Sold for "crushed Java."

‡ Ground by dealer, hence the percentage of adulteration could not be readily determined.

TABLE XIX.—PURE GROUND COFFEE, SOLD IN LABELED PACKAGES.

Station No.	Brand.	Dealer.	Price per Pound. Cents.
5972	Café Royal Coffee, Benedict & Thomas, New York	Gilbert & Thompson, New Haven	45
5958	Seal Brand Java and Mocha Coffee, Chase & Sanborn, Boston (powdered)	James' Cash Grocery, Danielson	38
5959	Seal Brand Java and Mocha Coffee, Chase & Sanborn, Boston (ground)	The Torrington Coöperative Co., 47 Main St., Torrington	40
5957	Union Club Coffee, Lincoln, Seyms & Co., Hartford	W. D. Mead, Collinsville	35
5948	High Life Java and Mocha Coffee, Winslow, Rand & Watson	H. C. Hall, 17 Union St., Willimantic	38

Adulterated Ground Coffee.—Fifty-eight out of sixty-four samples sold as "ground coffee" were found to be adulterated.

Of these, five were sold in labeled packages, giving the name of grinder, or wholesaler, without any statement to indicate that they were mixtures of coffee with other materials.

These were the following:—

5964. Sealed package labeled: "The American Java Coffee (W. G. & B.) Company." "Office of the American Java Coffee Co., 233, 235 and 237 Washington St., New York," etc. Bought of Lorenzo Dibble, South Norwalk. Price 22 cents per pound package. A gilt band cup and saucer given away with a pound.

Contains *chicory and peas.*

5965. Sealed package labeled: "Genuine Mocha Coffee, John P. Augur, Crescent Mills, New Haven." Bought of Adam Wagner, Ashmun St., New Haven. Price 25 cents per pound package.

Contains *chicory and peas.*

6050. Sealed package labeled: "Welcome Coffee gives uniform satisfaction. Manufactured only by Bryan, Miner & Read, New Haven, Conn. The buyer of this coffee receives free with each package 1 bar of Welcome soap. One pound fresh ground." Bought of Geo. W. Gates, Windsor Locks. Price 25 cents per package.

Contains *chicory and peas.*

5960. Sealed package labeled: "Boardman & Sons' Celebrated Excelsior Coffee, 304 Asylum St., Hartford." Bought of R. Fowler, Ford St., Hartford. Price 15 cents per pound package.

Contains *chicory, peas and "pellets."*

6015. Labeled on package from which sample was taken and on bag into which it was put: "Old Style Java, S. H. Brownell & Co., 26 to 31 Canal St., Providence, R. I." Bought (for coffee and chicory) of James' Cash Grocery, Danielson. Price 25 cents per pound.

Contains *imitation coffee.*

The detailed descriptions of the other adulterated samples, sold in bulk, fifty-three in number, are given in Table XX.

The foreign materials detected were chicory, roasted peas, wheat and rye, "imitation coffee" (such as has been described on page 54) and an adulterant consisting of pea hulls made into little granules with bran or middlings. These, for convenience, we have designated as "pellets."

COFFEE COMPOUNDS.

Under this head are grouped eleven mixtures which, as regards their composition and appearance, are like the adulterated ground coffees, but since they were sold in packages with statements on the labels (often, however, in very small type and obscurely placed) as to their character, they are separately considered.

6018. "Columbus Coffee, Chris. Columbus Coffee Company, 245 and 249 Washington St., New York. The contents of this package is a mixture or a Compound of Choice Roasted Coffee, Cereals and Chicory, Blended in such proportions as to produce a good beverage." Bought for coffee of Chas. Brenker, Torrington. Price 22 cents per pound package.

Contains *coffee, peas* and *chicory.*

5963. "Palmer's Compound Dandelion Coffee, Palmer's Dandelion Coffee Company, Norwich." Bought of C. W. Hill, Norwich. Dealer stated it was a compound. Price 20 cents per pound.

Contains *coffee, peas, chicory*, possibly other ingredients.

6051. "Red Star Blended Java. A blend of choicest Padang Java with roasted cereals," etc. Bought for coffee of the Torrington Coöperative Company. Price 25 cents per pound.

Contains *coffee, peas* and *chicory.*

TABLE XX.—ADULTERATED GROUND COFFEE, SOLD IN BULK.

Station No.	Dealer.	Adulterants detected.	Price per pound. Cents.
5901	C. N. Todd's Cash and Exchange Store, Naugatuck	Chicory, Peas	25
5902	Dillon's Cash Store, Naugatuck	" "	25
5903	Healy's South End Groceries, 622 S. Main St., Waterbury	" "	25
5913	Ransom Bros., 17 Market St., Rockville	" "	24
5920	W. H. Bronson, 234 Main St., Ansonia	" "	25
5923	Ed. Coogan, Windsor Locks	" "	25
5925	M. N. Brainerd, Wallingford	" "	25
5926	Willis L. Pond, Torrington	" "	20
5927	The Union Pacific Tea Co., 204 Main St., Ansonia	" "	25
5928	Samuel Z. D. Durand, 193 Main St., Birmingham	" "	25
5938	John P. Murphy, W. Main St., Norwich	" "	25
5945	Adam Wagner, Ashmun St., New Haven	" "	25
5951	Grand Union Tea Co., 88 State St., New London	" "	25
5953	Thos. W. Gardner, State St., New London	" "	20
5969	Geo. E. Cleaveland, 200 State St., Bridgeport	" "	25
5974	O. Coledezky, 68 Morgan St., Hartford	" "	25
5947	B. Carbo, Rapallo Ave, Middletown	Chicory, Wheat or Rye	24
5968	New England Tea Co., 442 Main St, Middletown	Chicory, "Imitation Coffee"	25
5907	Branch of York State Butter Co., 844 Bank St., Waterbury	" " "	25
5908	L. P. & A. M. Guilfoile, 777 Bank St., Waterbury	" " "	25
5910	Logan Bros., 863 Main St., Bridgeport	" " "	25
5911	John Driscoll, Cor. Main and High Sts., Bridgeport	" " "	25
5924	Henry King, Thompsonville	" " "	20
5967	The New York Grocery Co., Main St., Norwalk	" " "	25
5931	F. H. Smith, Wallingford	" " "	25
5905	Jas. F. Phelan, 41 E. Main St., Waterbury	Chicory, "Pellets"	25
5906	Moore's Cash Grocery, 804 Bank St., Waterbury	" "	28

TABLE XX.—ADULTERATED GROUND COFFEE, SOLD IN BULK.—*Continued.*

Station No.	Dealer.	Adulterants detected.	Price per pound. Cents.
5914	Village Store Co., Cor. State and Broad Sts., Bridgeport	Chicory, "Pellets"	25
6068	The Great Atlantic and Pacific Tea Co., 29 E. Main St., Waterbury	" "	25
5970	J. McEwen, 117 Saltonstall Ave., New Haven	Chicory, Peas, "Imitation Coffee," Pellets	25
5912	Union Street Grocery, 30 Union St., Rockville	" " " " "	25
5921	Grant's Tea and Coffee Store, Cor. State and Main Sts., Meriden	" " " " "	25
5944	McGovern Bros., 1037 State St., New Haven	" " " " "	25
5909	Chas. W. Starr, New Milford	Chicory, Peas, "Imitation Coffee," "Pellets," Wheat or Rye	25
5916	The Union Pacific Tea Co, cor. Main and Golden Hill Sts., Bridgeport	Chicory, Peas, "Imitation Coffee"	25
5922	James Keevers, Main St., Windsor Locks	" " " "	25
5930	York State Butter Store, 176 Main St., Ansonia	" " " "	25
5932	Holden Arnold, 999 Main St., Willimantic	" " " "	25
5935	H. A. Wheaton, Spring St., Danielson*	" " " "	25
5937	A. H. Armington, Railroad Square, Danielson	" " " "	28
5954	Gardner's Store, Elm St., Stonington	" " " "	20
5929	H. A. Willard, 268 Main St., Ansonia	Chicory, Peas, Wheat or Rye	25
5943	W. G. Graves, 341 Grand Ave, New Haven	" " " "	25
5946	Daniel Dore, 579 Grand Ave., New Haven	" " " "	12
5949	S. E. Amidon, 877 Main St., Willimantic	" " " "	25
5950	Hong Kong Tea Co., 210 Main St., Norwich	" " " "	35
5917	G. S. Weeks, 184 Main St., Torrington	"Pellets," Wheat or Rye	25
5904	American Tea Co., Wright & Weible, 42 E. Main St., Waterbury	"Pellets," "Imitation Coffee"	25
5918	B. Moffitt, 373 Main St., New Britain	"Imitation Coffee"	30
5934	Edward Mullan, 25 Main St., Putnam	" "	25
5962	Brainard & Bartlett, 72 Main St., Putnam	" "	25
5915	C. A. Wills, 364 Fairfield Ave., Bridgeport	Chicory	25
5919	Barry's New York Store, 374 Main St, Ansonia	"	25

* Sold for mixture of Java and Mocha screenings.

6007. "Eclipse blended crushed Coffee. In compounding this coffee we have selected goods that will give a much stronger and richer flavor than many of the so called pure coffees. A compound roasted and packed on the day shipped. Eclipse Coffee Co., 61 Hudson Street, New York." Bought for coffee of W. R. Bates, Norwalk. Price 23 cents per pound in a quart fruit jar. It was unground.

It contains 40 per cent. *coffee beans* whole or broken.
20 " *crushed peas.*
40 " *imitation coffee* and *chicory* (not separated).

6016. "Arabian Ground Coffee, full weight. 130 Franklin St., New York. This package contains ground coffee." The word "compound" was on another part of the package. Bought of T. W. Potter, New London. Price 15 cents per pound.

Contains *coffee*, *chicory* and *peas.*

5956. "Old reliable Java Coffee Company, New York." The following statement was printed in small type, "made of pea berry coffee and chicory." Bought of C. H. Bailey, 34 Enterprise St., Colchester. Price 25 cents per pound. A cup and saucer given away with each pound.

Contains *chicory*, *peas* and *cereals.*

5971. "Excelsior French Breakfast Coffee Compound. From Dwinell, Wright & Co., Boston, Mass." Bought for coffee of J. E. Sullivan, Putnam. Price 10 cents per pound.

Contains *chicory*, *peas*, *cereals ;* coffee was not detected.

5961. "Hayward & Co., French Breakfast Coffee Compound. Dwinell, Wright & Co., Boston." This was put up in the same kind of package as No. **5971** with a similar label. Bought of W. W. Walker, 269 Main St., Hartford, for coffee. Price 8 cents per pound.

Contains *chicory*, *peas*, *cereals ;* coffee was not detected.

6049. "Enterprise Compound Breakfast Coffee, Lincoln, Seyms & Co., Hartford." Bought for coffee of Ed. Coogan, Windsor Locks. Price 25 cents per pound.

Contains *coffee*, *chicory* and *peas.*

6080, 6019. "*Old Grist Mill Entire Wheat Coffee*, Potter & Wrightington, Boston, Mass." A sealed package of this article was sent to this station with the request that it be examined for real coffee, which it was claimed not to contain.

It was stated on the label: "Is a perfect hygienic product of the Entire Wheat Kernel. It is not ground from the coffee berry, and while possessing all the delicate flavor of Java or Mocha it contains none of their injurious qualities."

Another package of the Old Grist Mill Entire Wheat Coffee was bought by a station agent of N. A. Fullerton, New Haven, for 20 cents, a loaf of entire wheat bread being given away with it. The label was in all respects the same as the first with two exceptions. First, in place of the above quotation the following was substituted :

"Is a perfect hygienic product containing the entire wheat kernel, roasted and ground. It has all the delicate flavor of Java and Mocha; but, unlike these coffees, it does not produce biliousness or irritate the nerves."

Second. The statement was added, "It is in every sense a Pure Health Food."

Both packages contained *some coffee, mixed with wheat and with a considerable quantity of ground peas.*

Coffee Substitutes.

The following preparations from roasted cereals, etc., contain no real coffee and no such claim is made for them :

6017. "Ayers Hygienic Substitute for Coffee, M. S. Ayer, Boston." Bought of Sliver's Grocery, Stonington. Price 20 cents per pound.

6014. "New Era Improved Hygienic Coffee, E. C. Rich Co., New York and Boston." Bought of W. W. Walker, Hartford. Price 20 cents per pound.

5966. "Shredded Cereal Coffee, The Cereal Machine Co., Boston." Bought of H. C. Hall, Willimantic. Price 20 cents per pound.

6013. "J. W. Clark's Phosphi Cereal Nervine Coffee, a wholesome and nutritious substitute for the coffee bean, tea and chocolate. Clark & Alden, N. Woburn, Mass." Bought of Boston Branch Grocery, New Britain. 20 cents per pound.

RECAPITULATION.

The 122 samples which have been examined may be classified as follows :

UNGROUND COFFEE.

	In labeled packages.	In bulk.	Total.
Pure	2	31	**33**
Adulterated	0	11	**11**

GROUND COFFEE.

Pure	5	2	**7**
Adulterated	5	53	**58**
Coffee Compounds	11	0	**11**
Coffee Substitutes (no real coffee)	4	0	**4**
Total			**124**

It appears that most of the unground coffee on sale is pure, although 11 *samples were purchased which were found to contain one or more of the following adulterants in quantities ranging from* 12 *to* 42 *per cent.: crushed peas, imitation coffee (moulded from starchy materials) and chicory.*

89 *per cent. of the ground coffee found on sale was grossly adulterated. The adulterants detected were peas, "imitation coffee," "pellets" (pea hulls and starchy matter made into granules) wheat, rye and chicory. Only two samples of pure ground coffee sold in bulk were found on sale.*

MILK.

By E. H. Jenkins and A. L. Winton.

During the month of May one hundred and five samples of milk were bought by agents of the Station from grocers and a few bakeries in all parts of the city of New Haven.

The analyses of these samples show the general quality of the milk sold by grocers, which is quite likely to be rather poorer than that delivered by milkmen to families.

The per cents. of total solids in these samples were as follows:

Over 13 per cent. solids,	16 samples.
Between 12 and 13 per cent. solids,	51 samples.
Between 11.5 and 12.0 per cent. solids,	19 samples.
Between 11.0 and 11.5 per cent. solids,	12 samples.
Between 10.5 and 11.0 per cent. solids,	6 samples.
Under 10.5 per cent.	1 sample.
Total	105

The per cents. of fat found were:

Over 5.0 per cent. fat,	3 samples.
Between 4.5 and 5.0 per cent. fat,	2 samples.
Between 4.0 and 4.5 per cent. fat,	36 samples.
Between 3.5 and 4.0 per cent. fat,	37 samples.
Between 3.0 and 3.5 per cent. fat,	17 samples.
Between 2.5 and 3.0 per cent. fat,	10 samples.
Total	105

The following twelve samples judged by the commonly received standards are adulterated:

No.	Dealer.	Specific Gravity.	Solids.	Fat.	Solids not fat.
728	Mrs. P. E. Davis, 228 Shelton Ave.	29.2*	11.35	3.14	8.21
749	M. Maremma, 76 Oak St.	30.7	11.03	2.80	8.23
769	Cor. Washington and Portsea Sts.	20.6	10.00	3.72	6.28
773	185 Columbus Ave. cor. Liberty St.	28.7	11.39	3.50	7.89
783	Cor. Lawrence, opposite Forsyth's Dye Works	30.4	11.45	3.20	8.25
787	Ferry St., cor. Pierpont St.	31.0	10.38	2.29	8.09
799	398 Grand Ave.	28.4	11.43	3.60	7.83
800	D. Dore, Grand Ave	30.5	11.48	3.20	8.28
817	Stier's Bakery, 127 Congress Ave.	28.5	11.09	3.30	7.79
821	Mrs. P. E. Davis, 228 Shelton Ave.	30.3	10.92	2.60	8.32
827	N. Stein, 815 Grand Ave.	29.0	10.55	2.89	7.66
828	Bakery, cor. State and Olive Sts.	29.5	10.59	2.60	7.99

* Read 1.0292.

Eleven samples beside these, whether adulterated or not, were of such inferior quality as not to be fairly marketable.

Twenty-three samples of milk, therefore, or more than one-fifth of the whole number examined, were either adulterated, or of such inferior quality that their sale might justly be prohibited by statute or city ordinance.

It is a perfectly familiar fact that pure milk from healthy cows has no fixed and constant composition.

Differences of breed, individual differences among cows of one breed, the age of the cows, the feed, and the period of lactation, all affect the chemical composition of the milk in a very marked degree.

The differences in chemical composition of pure milk are, however, very much smaller when comparison is made between the mixed milk of many cows rather than between the milk of individual cows.

Milk which is sold in our cities represents, almost without exception, the mixed milk of a number of cows or of herds.

State and municipal governments, boards of health and associations of official chemists have from time to time adopted "standards" of composition of milk, fixing minimum percentages of solids, fat and solids not fat, or a specific gravity which shall serve to distinguish pure or marketable milk from adulterated or unmarketable milk.

Thus, in the State of New York, a seller is liable to prosecution if the milk has less than 12 per cent. of solids and 3 per cent. of fat.

In Massachusetts, milk must contain 13 per cent. of solids in all months except May and June, and in those months must have at least 12 per cent. of solids.

The standard adopted by the Society of Public Analysts of England is

Solids	11.50
Fat	3.00
Solids, not fat	8.50

The standard which is fair for one country or section or State is not necessarily fair for another.

If the standard is a reasonable one it will sometimes happen that pure, unadulterated milk of very inferior quality will fall below its requirements and thus be condemned as adulterated when it is not.

But the public ought to be protected from genuine milk of a very poor quality as well as from richer milk which has been adulterated.

We believe that in this State milk which is sold at the usual market rates ought to have a specific gravity between 1.029 and 1.033, with not less than 3.5 per cent. of fat and 11.50 per cent. of solids; and if any two of the three fall below the minimum named, the milk should be declared unsalable.

We consider these as the lowest limits which should be recognized in this State and leave the question open for the present whether they are not too low.

It would seem to be wise to forbid the sale, under penalty, of any milk which does not come up to the prescribed quality, leaving the question of wilful adulteration out of the issue.

All of the samples of milk examined were tested for preservatives, but none were found in any of them.

The use of preservatives in milk without notice to the purchaser is clearly forbidden in the sixth provision of section 3 of the pure food law.

CREAM OF TARTAR.

By A. W. Ogden.

Cream of tartar is made from argol, an incrustation formed during the fermentation of wines, and is brought into commerce as a white crystalline solid or powder having a pleasant, sour taste.

It is, chemically considered, acid potassium tartrate, which when chemically pure contains 25.0 per cent. of potash.

"It usually contains from 2 to 7 per cent. of calcium tartrate, an amount admissible in samples for medical use, but it sometimes contains from 8 to 13 per cent. of tartrate of calcium."—(*U. S. Dispensatory, 15th Ed., 1153.*)

It is used in cookery to "raise" bread by setting free carbonic acid from the salæratus or "soda" which is mixed with dough.

One hundred and three samples bought by the Station agents for cream of tartar have been examined.

Thirty-five were in packages bearing the manufacturer's, grinder's or packer's name and brand. Of these, seven were adulterated, as will be seen in Table XXI.

The samples bearing the names of the following firms were unadulterated: Austin, Nichols & Co., N. Y., Berry Wisner, Lohman & Co., N. Y., Bugbee and Brownell, Providence, R. I., Clark, Chapin & Bushnell, N. Y., Francis H. Leggett & Co., N. Y., Lincoln, Seyms & Co., Hartford, Ct., James P. Powers & Co., N. Y., James Pyle, N. Y., D. & L. Slade Co., Boston, Mass., Stickney & Poor, Boston, Mass., Thurber, N. Y.

Sixty-eight samples of cream of tartar were bought in bulk from retail grocers in different parts of the State.

Twenty-four of these were variously adulterated, some of them containing no cream of tartar at all.

Partial analyses of them, with statement of the adulterants, are given in Table XXI.

In addition to the adulterants named in the table, all of the samples, with exception of Nos. 537, 539, 557, 665 and 1500, also contained starch.

TABLE XXI.—ADULTERATED CREAM OF TARTAR.

No.	Manufacturer or Wholesaler.	Retailer.	Analysis.						Nature of Adulteration.
			Potash.	Soda.	Lime.	Sulphuric Acid.	Phosphoric Acid.	Nitrogen.	
543	Sold in bulk.	H. Glover & Son, Wall St., Norwalk	.19	3.59	20 37	8.96	38.94	----	Acid phosphate of lime.
644	"	Philip Aperion, 8 Main St., Torrington	trace.	2.48	25.06	12.96	33.01	.10	" " "
572	"	M. Blanchette, 263 So. Main St., Waterbury	----	2.36	21.84	13.24	32.18	.12	" " "
1439	"	Appley & Jordan, 88 West Main St., Norwich	.85	2.10	24.28	21.63	23.74	----	" " "
574	"	Healey's South End Groceries, 622 So. Main St., Waterbury	----	1.84	20.04	23.87	23.67	.44	" " "
1434	"	A. Wilson, 78 Franklin St., Norwich	trace.	2.91	23.68	20.42	22.20	----	" " "
649	"	York State Butter Store, 176 Main St., Ansonia	----	1.38	16.94	21.54	21.98	.50	" " "
700	Coburn & Co. First Quality.	W. G. Graves, 341 Grand Ave., New Haven	1.23	1.50	19.78	25.95	15.94	.52	" " "
544	Sold in bulk.	———, 53 Main St., Norwalk	.22	2.20	29.80	32.05	15.46	----	" " "
1450	"	H. A. Wheaton, Spring St, Danielson	.21	1.30	13.50	12.91	13.75	----	" " "
622	Challenge Mills, N.Y.	J. A. Pillgard, 138 Front St., Hartford	----	----	----	----	----	----	" " "
527	" " "	C. H. Reid, 476 Main St., Bridgeport	7.33	1.55	18.22	14.88	18.45	.09	" " "
632	Sold in bulk.	R. Fowler, Ford St., Hartford	15.07	1 67	7.50	10.34	1.66	----	Sulphate and phosphate of lime.
1458	"	Kingsley's Store, Plainfield	14.87	1.15	10.20	8.79	9.56	----	" " " "
1431	"	E. A. Fitch, Broadway, Norwich	14.20	1.63	10.34	9.14	10.00	----	" " " "
593	"	D. M. Welch & Son, Congress Ave., New Haven	12.23	1.61	12.72	19.43	----	.18	Plaster.
659	"	" " " Main St., Derby	11.59	1.43	10.92	18.48	----	.18	"
658	"	Barry's New York Store, 374 Main St., Ansonia	10.95	1.42	12.60	19.98	----	.20	"
539	"	Gustav E. Friedrich, South Norwalk	9.70	1.25	17.88	24.90	----	----	"
557	Bennett, Sloan & Co.	M. McPhelan, White St., Danbury	8.22	1.33	18.46	27.13	----	.20	"
1500	" " "	J. McEwen, 117 Saltonstall Ave., Fair Haven	----	----	----	----	----	----	"
1476	Sold in bulk.	S. C. Amidon, 877 Main St, Willimantic	6.83	1.69	8.74	21 27	6.56	1.08	Sulphate and phosphate of lime.
1427	"	Keefe and Davis, 125 Bank St., New London	4.51	2.37	17.94	13.02	13.78	----	" " " "
637	Crescent Mills, New Haven.	G. S. Weeks, 184 Main St., Torrington	4.46	1.50	15.38	23.12	12.51	.60	" " " "
1497	Crescent Mills, New Haven.	New Haven Provision Co., 398 Grand Ave., Fair Haven	----	----	----	----	----	----	" " " "
554	Sold in bulk.	Mastin & Co., 79 White St., Danbury	----	1.85	27.42	38.80	---	----	Plaster.
548	"	New York Grocery Co., Main St., Norwalk	1.16	1.29	26.04	36.34	----	trace.	"
665	"	Morris Sheild, Main St., Derby	2.01	1.48	26.00	39.14	----	.30	"
610	"	Geo. W. Gates, Main St., Windsor Locks	.17	1.27	30.94	39.34	9.40	----	Sulphate and phosphate of lime.
611	"	James Keevers, Main St, Windsor Locks	.23	5.22	31.30	38.63	10.76	----	" " " "
537	"	A. Malmo's Market, Main St., So. Norwalk	----	1.84	27.74	38.69	9.43	trace.	" " " "

CEREAL FOODS.

By A. L. Winton.

Nine samples have been examined. No corn starch or tissue was found in any of them.

No wheat was found in the oat meals. All appeared to be properly branded and unadulterated.

The brands examined were the following:—

Oat Preparations.

H. O., made by Hornby's Oatmeal Co., New York.

Quaker Rolled White Oats, made by the American Cereal Co., Chicago, Ill.

Street's Perfection Rolled White Oats, and Toasted White Oats, made by S. H. Street & Co., New Haven, Ct.

Wheat Preparations.

Fould's Wheat Germ Meal, made by Fould's Milling Co., Cincinnati.

Wheatlet, made by Franklin Mills Co., Lockport, N. Y.

Eli Pettijohn's Best, made by Eli Pettijohn Cereal Co., Minneapolis.

Pettijohn's Breakfast Gem, C. S. Lanmeister.

Ralston Health Club Breakfast Food, made by Robinson-Danforth Co., St. Louis, Mo.

Street's Perfection Wheatine, made by S. H. Street & Co., New Haven.

Wheatena.

SUMMARY.

As appears in the following table, this report contains the results of examination of 849 articles of food of thirteen different kinds.

With the exception of Martius' yellow, found in minute quantity in certain samples of mustard, no poisonous adulterants have been found.

TABLE XXII.

	Examined.	Pure.	Doubtful.	Adulterated.
Maple Syrup	61	48	5	8
" Sugar	7	7	--	--
Sugar	16	16	--	--
Syrup	4	4	--	--
Strained Honey	48	43	--	5
Comb "	12	12	--	--
Lard	118	75	--	43
Pepper	102	62	8	32
Mustard	69	15	--	54
Cheese	72	72	--	--
Coffee	124	53	--	69
Milk	105	82	11	12
Cream of Tartar	103	72	--	31
Cereal Foods	9	9	--	--
	848	570	24	254

Of the whole number examined
67.2 per cent. were pure.
2.9 " were doubtful.
29.9 " were adulterated within the meaning of the act.

STATE LAWS REGARDING ADULTERATION OF FOOD AND DRUGS.

The following laws regarding special forms of adulteration of food or drugs are now on the statute books of this State and, with the Pure Food Law already printed on page 2, give a complete view of our legislation on this subject.

The statute regulating the sale of imitation butter created the office of Dairy Commissioner, who is charged with the execution of the laws regarding the sale of butter, molasses and vinegar. Numerous prosecutions have been brought for violation of these laws.

No one is charged with the execution of the laws regarding Adulteration of Milk, Adulteration of Candy, Adulteration of Spirituous and Intoxicating Liquors, and Adulteration of Drugs and Medicines. Boards of Health are *permitted* to act under the statute regarding the Adulteration of Food, but we cannot learn that any action was ever brought under any of these statutes, which do not make it the duty of some official or institution to see to their enforcement.

ADULTERATION OF BUTTER.

[G. S. 1888, Ch. CLVI.]

[Amended by Ch. CXIV, Public Acts, Jan. Sess. 1893, and Ch. XXXII, Public Acts, Sess. 1895.]

Sec. 2614. Any article resembling butter in appearance and not made wholly, salt and coloring excepted, from the milk of cows, shall be imitation butter within the meaning of this chapter. The words "butter," "dairy," or "creamery" shall form neither the whole nor a part of the name of any imitation butter, or appear upon any article, or upon any box, tub, or package containing imitation butter.

Sec. 2615. No person by himself, or his agents, or servants, shall render or manufacture, sell, offer for sale, expose for sale, take orders for the future delivery of, or have in his possession with intent to sell, any article, product or compound made wholly or partly out of any fat, oil or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same; provided that nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form and in such manner as will advise the consumer of its real character free from coloration or any ingredient that causes it to look like butter. No imitation butter shall be sold or exposed for sale or delivered except under the following conditions: First, the seller shall maintain in plain sight, over or next the main outer entrance of the premises where the selling is done, a sign bearing in plain, black roman letters, not less than two inches wide and four inches long, on a white ground, the words "sold here," preceded by the name of the imitation article. If the selling is done from a wagon, or other vehicle, such vehicle shall conspicuously bear upon its outside, on both sides of said wagon or vehicle, such a sign. If the delivering is done from a wagon or other vehicle, such vehicle shall conspicuously bear, upon its outside, on both sides of said wagon or vehicle, a sign bearing in plain, black, roman letters, not less than two inches wide and four inches long, on a white ground, the words "delivered here," preceded by the name of the imitation article. Second, all imitation butter shall be kept in an enclosing package which shall bear on the outside of its body, and also of its cover, at all times in plain sight of a beholder of the package, in black, roman letters, not less than one inch wide, and two inches long, on a white or light-colored ground, the name of the imitation article.

Third, the seller shall orally inform each buyer at each sale that the article he buys is not butter, and shall give the buyer the name of the imitation article.

Fourth, every person, copartnership, or corporation, selling, or offering for sale, any imitation butter, and every keeper of a hotel boarding-house, or restaurant, temporary or permanent, who shall furnish any guest with any imitation butter, or food containing it, shall within fifteen days after the passage of this act, or within fifteen days after commencing said business, and annually on the first day of May, or within fifteen days thereafter, register in a book kept by the Dairy Commissioner for that purpose, the name and the town, street and number of street of the place of business of said person, copartnership, corporation, keeper of hotel, boarding-house, or restaurant. All signs prescribed in sections

2615, 2616 and 2617 of the General Statutes, shall be provided by the Dairy Commissioner, and all signs required, under provisions of section 2515 of the General Statutes, to be maintained in plain sight, over or next the main outer entrance of the premises where the selling is done, shall be placed in position, under the direction of the Dairy Commissioner or his deputy. All signs so furnished by the Dairy Commissioner shall be paid for by the parties receiving the same, the same to be furnished at the actual cost thereof.

SEC. 2616. No baker or vender of food shall sell or expose for sale any article of food containing imitation butter unless such baker or vender shall maintain the same kind of a sign as hereinbefore first prescribed, in the way and manner prescribed in that connection, except that the word "used" shall be substituted for the word "sold." If the selling be done from a wagon, or other vehicle, such vehicle shall conspicuously bear such a sign.

SEC. 2617. No keeper of a hotel, boarding-house, or restaurant, temporary or permanent, shall furnish any guest with any imitation butter, or food containing it, unless such keeper shall maintain in plain sight of all guests sitting at tables where food is served such a sign or signs as hereinbefore prescribed, except that the word "used" shall be substituted for the word "sold."

SEC. 2618. The Governor shall appoint a citizen of the State as a Dairy Commissioner, who shall hold office for two years from and after the first day of May succeeding his appointment, and until his successor is appointed, unless sooner removed by the Governor for cause; and in case of his death, resignation, or removal, the Governor shall fill the vacancy. It shall be the duty of the Dairy Commissioner to attend to the enforcement of this chapter throughout the State. A room in the Capitol shall be set apart for the Dairy Commissioner. He may appoint and remove a deputy, who may also act as clerk. The Dairy Commissioner and his deputy shall have free access, at all reasonable hours, for the purpose of examining into any suspected violation of this chapter, to all places and premises, apartments of private families keeping no boarders excepted, where the Dairy Commissioner or his deputy suspects imitation butter to be made, sold, or used; and on tender of the market price of good butter for the same may take from any person, firm, or corporation, samples of any articles suspected to be imitation butter. The Dairy Commissioner may have samples suspected to be imitation butter analyzed at the Connecticut Experiment Station, or by any State chemist, and a sworn or affirmed certificate of the analyst shall be *prima facie* evidence of the ingredients and constituents of the sample analyzed. Any one refusing the Dairy Commissioner, or his deputy, access, in a reasonable manner and at a reasonable time, to premises for said purpose of examination, or refusing to sell samples as hereinbefore provided for, shall incur the penalty hereinafter first provided for violation of this chapter.

The Dairy Commissioner shall make an annual report to the Governor, and such annual reports shall be submitted to the General Assembly at its regular session.

Sec. 2619. Any person violating any of the provisions of sections 2614, 2615 or 2616, and any person except a boarding-house keeper violating section 2617, shall for the first offence be fined not more than one hundred dollars, or imprisoned not more than sixty days, or both; for any subsequent offence said fine and imprisonment shall be doubled. Any boarding-house keeper violating section 2617 shall for the first offence be fined twenty-five dollars, or imprisoned not exceeding thirty days, or both; for any subsequent offence, said fine and imprisonment last mentioned shall be doubled. Evidence of any violation of this chapter, shall be *prima facie* evidence of wilful violation, with knowledge.

ADULTERATION OF MILK.

[G. S. 1888, Ch. CLVIII.]

Sec. 2658. Whoever shall knowingly sell, supply, or bring to be manufactured to any butter or cheese manufactory in this State any milk diluted with water, or adulterated by the addition of any foreign substance, or from which any milk or cream or milk commonly known as strippings has been taken; or whoever shall knowingly bring or supply milk to any butter or cheese manufactory that is tainted or partly sour, shall forfeit not less than twenty-five nor more than one hundred dollars, with costs of suit, for the benefit of the person or persons upon whom such fraud shall be committed.

Sec. 2659. The usual test for quality and the certificate of analysis of the Director of the Connecticut Agricultural Experiment Station shall be deemed *prima facie* proof of adulteration.

SEC. 2660. No person shall sell, offer or expose for sale any milk from which the cream, or any part thereof, has been removed, without distinctly and durably affixing a label, tag, or mark of metal in a conspicuous place upon the outside, and not more than six inches from the top of every can, vessel, or package containing such milk, and such metal label, tag, or mark shall have the words "Skimmed Milk" stamped, printed, or indented thereon in letters not less than one inch in height; and such milk shall only be sold or retailed out of a can, vessel, or package so marked.

SEC. 2661. No person shall sell or offer for sale, or shall have in possession with intent to sell or offer for sale, any impure or adulterated milk.

SEC. 2662. Every person who shall violate any of the provisions of the two preceding sections shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both.

SEC. 2663. A printed notice of this and the five preceding sections shall be conspicuously posted in all public places, creameries or factories where milk is received or sold.

SEC. 2664. Any person who shall knowingly sell, or expose for sale, milk, or any product of milk, from any cow which shall have been adjudged, by the Commissioners upon Diseases of Domestic Animals, affected with tuberculosis, or other blood disease, shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both.

ADULTERATION OF MOLASSES.

[G. S. 1888, Ch. CLVII.]

[Amended by Ch. CCXXXVIII, Public Acts, Jan. Sess., 1889.]

SEC. 2620. It shall be the duty of the Dairy Commissioner to attend to the enforcement of the law against the adulteration of molasses and the sale of adulterated molasses, and for the purpose of examining into suspected violations of such law, he shall, at all reasonable hours, have free access to all places and premises where he suspects that molasses is adulterated or adulterated molasses is sold, and, on tender of the market price of good molasses for the same, he may take from any person, firm or corporation, samples of molasses which he suspects is adulterated;

and he may have samples of molasses suspected to be adulterated analyzed by any State chemist or by the Experiment Station, and a sworn or affirmed certificate of such analyst shall be *prima facie* evidence of the ingredients and constituents of the sample analyzed; and if such analysis shall show that the molasses is adulterated, he shall make complaint to the proper prosecuting officer that the person or persons who adulterated said molasses, or sold or exposed for sale such adulterated molasses, may be prosecuted.

SEC. 2621. Any person refusing the Dairy Commissioner or his deputy access in a reasonable manner and at a reasonable time for said purpose of examination, or refusing to sell samples as hereinbefore provided, shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both.

SEC. 2622. Any person who shall adulterate any molasses, or who shall sell, or offer, or expose for sale, or who shall solicit or receive any order for the sale or delivery within this State, or for delivery without this State for shipment into this State, of any molasses adulterated with salts of tin, terra alba, glucose, dextrose, starch sugar, corn syrup, or other preparation of or from starch, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both. The delivery of any of the above mentioned preparations upon any order solicited or received within this State, shall be conclusive evidence that the order, upon which such delivery was made, was for such articles, and shall render the person soliciting or receiving such order liable to the penalty above prescribed.

ADULTERATION OF CANDY.

[Chapter CLXXXIII, Acts of Session of 1895.]

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Any person who shall adulterate candy with terra alba, barytes, talc, or any other mineral substance, or with poisonous colors or flavors, or knowingly sell or offer for sale candy so adulterated, shall be punished by a fine of not more than one hundred dollars.

AN ACT TO PREVENT FRAUD IN THE MANUFACTURE AND SALE OF VINEGAR.

[Chap. LX, Acts of Session of 1889, as amended by Chap. CCXXXIV of Acts of same Session.]

Be it enacted by the Senate and House of Representatives in General Assembly convened:

SECTION 1. No person shall make and sell, or make for sale, as cider vinegar, any vinegar not produced wholly from the juice of apples. No person shall add to any vinegar, or to any article sold or to be sold as vinegar, any drug, any hurtful or foreign substance, any coloring matter, or any acid, other than acetic. Any person violating this section of this act shall be fined fifty dollars for a first offense, and for a second or later offense he shall be fined one hundred dollars and imprisoned thirty days.

SEC. 2. No person shall make and sell, or make for sale, any vinegar not having an acetic acidity equivalent to the presence therein of not less than four per centum by weight of absolute acetic acid, and in the case of cider vinegar, not less than two per centum by weight of cider vinegar solids upon full evaporation over boiling water. No maker of vinegar shall sell the same without conspicuously branding, stenciling or painting upon the head of the barrel, cask, keg, or package containing the same, the name of the maker, his residence or place of manufacture, and in the case of cider vinegar, the words "cider vinegar," *provided* that this clause concerning marking shall not apply to retail sales, at the place of manufacture, in quantities of less than five gallons, and in open packages. Any person violating this section of this act shall be fined ten dollars for a first offense, and for a second or later offense fifty dollars.

SEC. 3. No person shall sell, or offer, or expose for sale, or exchange, or solicit, or receive any order for the sale or delivery within this State, or for delivery without this State for shipment into this State: first, any vinegar, as cider vinegar, not wholly produced from the juice of apples; or second, any vinegar, or article sold or to be sold as vinegar, in which has been added any drug, or any hurtful or foreign substance, or any coloring matter, or any acid other than acetic; or third, any vinegar not having an acetic acidity equivalent to the presence therein of not less than four per centum by weight of absolute acetic acid, and in case of cider vinegar, not less than two per centum by weight of cider vinegar solids upon full evaporation over boiling water; or fourth, any vinegar made in this State and purchased by the person last mentioned of the maker in a barrel, cask, keg or other package not branded, stenciled or painted as required by a previous section of this act. Any person violating this section of this act shall be fined ten dollars for a first offense, and for a second or later offense fifty dollars. The delivery of any of the above mentioned articles upon any order solicited or received within this State shall be conclusive evidence that the order upon which such delivery was made was for such articles, and shall render the person soliciting or receiving such order liable to the penalty above prescribed.

Sec. 4. It shall be the duty of the Dairy Commissioner to attend to the enforcement of this act; and, for the purpose of examining into suspected violations thereof, he shall at all reasonable hours have free access to all places and premises where he suspects that any provision of this act is violated, and on tender of the market price of good vinegar therefor, he may take from any person, firm or corporation, samples of vinegar which he suspects of being made or sold in violation of this act; and he may himself analyze such samples, or have such samples analyzed by any State chemist or by the Experiment Station; and a sworn or affirmed certificate by such analyst shall be *prima facie* evidence of the ingredients and constituents of the sample analyzed; and if such analysis shall show that such sample does not conform to any requirement of this act, and shall give the Dairy Commissioner reasonable ground for belief that any provision of this act has been violated he shall make complaint to the proper prosecuting officer, to the end that the violator may be prosecuted.

Sec. 5. Any person refusing the Dairy Commissioner or his deputy access, in a reasonable manner and at a reasonable time, for said purpose of examination, or refusing to sell samples as hereinbefore provided, shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both. Evidence of any violation of this act shall be *prima facie* evidence of wilful violation with knowledge.

ADULTERATION OF SPIRITUOUS AND INTOXICATING LIQUORS.

[G. S. 1888, Ch. CLXXXVII, Sec. 3100.]

Every person who shall manufacture, sell, or keep for sale, any spirituous or intoxicating liquors, or any liquors made or compounded in imitation thereof, which are adulterated with any deleterious or poisonous substance, shall be fined not more than two hundred and fifty dollars, which fine shall be paid, one-half to him who shall prosecute to effect, and the other half to the town in which such offense is committed.

ADULTERATION OF DRUGS AND MEDICINES.

[G. S. 1888, Ch. CLXXXVIII, Sec. 3129.]

Every person who shall knowingly adulterate or cause any foreign or inert substance to be mixed with any drug, or medicinal substance or preparation recognized by any pharmacopœa or employed in medical or medicinal practice, so as to weaken or destroy its medicinal effect, or shall sell such drug, or compound, knowing it to be so adulterated or mixed, shall be fined not less than ten, nor more than one hundred dollars, and upon conviction, all such adulterated or mixed articles in his possession may be seized upon a warrant issued by the court in which such conviction is had, and destroyed by the officer by whom such seizure shall be made.

ADULTERATION OF FOOD.

[G. S. 1888, Ch. CLVIII.]

Sec. 2648. The boards of health of the several cities, boroughs, and towns, in this State, may from time to time, at their discretion, procure from any dealer in provisions, groceries, medicines, or other articles of consumption, samples of such articles, and cause the same to be analyzed by one of the State chemists, and if on such analysis it shall be found that the article analyzed is adulterated with any deleterious or foreign ingredient or ingredients, other than is represented verbally and in a conspicuous label by the seller, the chemist making the analysis shall issue his certificate setting forth the kind and quantity, as near as may be, of deleterious and foreign ingredients found in the article analyzed, and the board of health causing such analysis to be made shall cause said certificate to be published in some paper published in the city, borough, or town, or one nearest thereto, where the article analyzed was obtained, for such length of time as they may think proper, and the cost of analysis, together with the cost of the publication of the certificate, shall be paid by the person or firm from whom the article analyzed was obtained; and if such person or firm shall so elect, he or they may annex to said certificate his or their sworn affidavit, setting forth from whom the article analyzed was purchased by him or them.

SEC. 2649. In all cases where an analysis has been made according to the provisions of the preceding section, and the article or articles analyzed shall have been found pure and free from foreign ingredients, the cost of the analysis shall be paid by the city, borough, or town, whose board of health, or any officer thereof, caused such analysis to be made.

SEC. 2650. Every person who shall adulterate any sugar, or who shall knowingly sell, or offer or expose for sale any sugar which has been adulterated with salts of tin, terra alba, glucose, dextrose, starch sugar, corn syrup, or other preparation from starch, shall be fined not more than five hundred dollars, or imprisoned not more than one year.

COMMERCIAL FERTILIZERS.

During 1896 fifty-two manufacturing firms have entered for sale in this state two hundred and fifty-five distinct brands of fertilizers, viz:

Special manures for particular crops	91
Other nitrogenous superphosphates	104
Bone manures and "bone and potash"	33
Chemicals, including fish, tankage and castor pomace	27
	255

The duties of this Station regarding fertilizers are prescribed by law as follows:

THE FERTILIZER LAW OF CONNECTICUT.

The General Assembly, in 1882, passed an Act concerning Commercial Fertilizers, which, as amended in 1893, is now in force.

Attention is specially called to the following requirements of the law, the full text of which is printed on pages 83 and 84.

1. In case of *all* fertilizers or manures, except stable manure and the products of local manufactures of less value than ten dollars a ton, the law holds the SELLER responsible for *affixing a correct label or statement* to every package or lot sold or offered, as well as for the *payment of an analysis fee* of ten dollars for each fertilizing ingredient which the fertilizer contains or is claimed to contain, *unless* the MANUFACTURER OR IMPORTER has provided labels or statements and has paid the fee. Sections 4005 and 4007.

The Station understands "the fertilizing ingredients" to be those whose determination in an analysis is necessary for a valuation, and which are generally Nitrogen, Phosphoric Acid and Potash. The analysis fees in case of any fertilizer will therefore usually be ten, twenty or thirty dollars, according as one, two or three of these ingredients are contained or claimed to exist in the fertilizer.

2. The law also requires, *in the case of every commercial fertilizer*, that a *sealed sample* shall be deposited with the Director of the Station by the MANUFACTURER OR IMPORTER, and that a *certified statement* of composition, etc., shall be filed with him. Section 4006.

A statement of the per cent. of Nitrogen, Phosphoric Acid (P_2O_5) and Potash (K_2O), and of their several states or forms, will suffice in most cases. Other ingredients may be named if desired.

In all cases the per cent. of *nitrogen* must be stated. Ammonia may also be given when actually present in ammonia salts, and "ammonia equivalent to nitrogen" may likewise be stated.

The per cent. of soluble and reverted phosphoric acid may be given separately or together, and the term "available" may be used in addition to, but not instead of, soluble and reverted.

The percentage of insoluble phosphoric acid may be stated or omitted.

In case of Bone, Fish, Tankage, Dried Meat, Dried Blood, etc., the chemical composition may take account of the two ingredients: Nitrogen and Phosphoric Acid.

For Potash Salts give always the per cent. of Potash (potassium oxide): that of Sulphate of Potash or Muriate of Potash may also be stated.

The chemical composition of other fertilizers may be given as found in the Station Reports.

3. It is also provided that EVERY PERSON in the State, who sells *any commercial fertilizer of whatever kind or price*, shall annually report certain facts to the Director of the Experiment Station, and on demand of the latter shall deliver a sample for analysis. Section 4008.

4. All "CHEMICALS" that are applied to land, such as Muriate of Potash, Kainite, Sulphate of Potash and Magnesia, Sulphate of Ammonia, Nitrate of Potash, Nitrate of Soda, etc.—are considered to come under the law as "Commercial Fertilizers." Dealers in these chemicals must see that packages are suitably labeled. They must also report them to the Station, and see that the analysis fees are duly paid, in order that the Director may be able to discharge his duty as prescribed in Section 4013 of the Act.

It will be noticed that the State exacts no license tax either for making or dealing in fertilizers. For the safety of consumers and the benefit of honest manufacturers and dealers, the State requires that it be known what is offered for sale, and whether fertilizers are what they purport to be. With this object in view the law provides, in Section 4013, that all fertilizers be analyzed, and it requires the parties making or selling them to pay for these analyses in part; the State itself paying in part by maintaining the Experiment Station.

ACTS CONCERNING COMMERCIAL FERTILIZERS.

Chapter CCLIII of the General Statutes of Connecticut as amended by Chapter CLXXII of the Acts of the General Assembly, Session of 1893.

SECTION 4005. Every person or company who shall sell, offer, or expose for sale, in this State, any commercial fertilizer or manure except stable manure, and the products of local manufacturers of less value than ten dollars a ton, shall affix conspicuously to every package thereof a plainly printed statement clearly and truly certifying the number of net pounds of fertilizer in the package, the name, brand, or trade-mark under which the fertilizer is sold, the name and address of the manufacturer, the place of manufacture and the chemical composition of the fertilizer, expressed in the terms and manner approved and usually employed by the Connecticut Agricultural Experiment Station.

If any such fertilizer be sold in bulk, such printed statement shall accompany every lot and parcel sold, offered or exposed for sale.

SEC. 4006. Before any commercial fertilizer is sold, offered, or exposed for sale, the manufacturer, importer or person who causes it to be sold, or offered for sale, within this State shall file with the Director of the Connecticut Agricultural Experiment Station two certified copies of the statement prescribed in section 4005, and shall deposit with said director a sealed glass jar or bottle containing not less than one pound of the fertilizer, accompanied by an affidavit that it is a fair average sample thereof.

SEC. 4007. The manufacturer, importer, agent, or seller of any commercial fertilizer shall pay on or before May 1, annually, to the Director of the Connecticut Agricultural Experiment Station, an analysis fee of ten dollars for each of the fertilizing ingredients contained or claimed to exist in said fertilizer: *provided*, that when the manufacturer or importer shall have paid the fee herein required for any person acting as agent or seller for such manufacturer or importer, such agent or seller shall not be required to pay the fee prescribed in this section.

SEC. 4008. Every person in this State who sells, or acts as local agent for the sale of any commercial fertilizer of whatever kind or price, shall annually, or at the time of becoming such seller or agent, report to the Director of the Connecticut Agricultural Experiment Station his name and brand of said fertilizer, with the name and address of the manufacturer, importer, or party from whom such fertilizer was obtained, and shall, on demand of the Director of the Connecticut Agricultural Experiment Station, deliver to said director a sample suitable for analysis of any such fertilizer or manure then and there sold or offered for sale by said seller or agent.

SEC. 4009. No person or party shall sell, offer, or expose for sale, in this State, any pulverized leather, raw, steamed, roasted, or in any form, as a fertilizer or as an ingredient of any fertilizer or manure, without explicit printed certificate of the fact, such certificate to be conspicuously affixed to every package of such fertilizer or manure, and to accompany every parcel or lot of the same.

SEC. 4010. Every manufacturer of fish guano, or fertilizers of which the principal ingredient is fish or fish mass from which the oil has been extracted, shall, before manufacturing or heating the same, and within thirty-six hours from the time such fish or mass has been delivered to him, treat the same with sulphuric acid or other chemical, approved by the director of said experiment station, in such quantity as to arrest decomposition : *provided, however*, that in lieu of such treatment such manufacturers may provide a means for consuming all smoke and vapors arising from such fertilizers during the process of manufacture.

SEC. 4011. Any person violating any provisions of the foregoing sections of this chapter shall be fined one hundred dollars for the first offense, and two hundred dollars for each subsequent violation.

SEC. 4012. This chapter shall not affect parties manufacturing, importing, or purchasing fertilizers for their own private use, and not to sell in this State.

SEC. 4013. The Director of the Connecticut Agricultural Experiment Station shall pay the analysis-fees received by him into the treasury of the station, and shall cause one or more analyses of each fertilizer to be made and published annually. Said director is hereby authorized, in person or by deputy, to take samples for analysis from any lot or package of manure or fertilizer which may be in the possession of any dealer.

SEC. 4014. The Director of the Connecticut Agricultural Experiment Station shall, from time to time, as bulletins of said Station may be issued, mail or cause to be mailed two copies, at least, of such bulletins to each post-office in the State.

OBSERVANCE OF THE FERTILIZER LAW.

Here follows an alphabetical list of the manufacturers who have paid analysis fees as required by the Fertilizer Law, and the names or brands of the fertilizers for which fees have been paid by them for the year ending May, 1897.

Firm.	*Brand of Fertilizer.*
Baker, H. J. & Bro., 93 William St., New York City.	Special Corn Manure. Special Potato Manure. A. A. Ammoniated Superphosphate. Special Tobacco Manure. Special Onion Manure. Harvest Home Fertilizer. Castor Pomace.
Berkshire Mills, Bridgeport, Conn.	Berkshire Complete Fertilizer. “ Ammoniated Bone Phosphate. “ Fish and Potash.
Bowker Fertilizer Co., 43 Chatham St., Boston, Mass.	Stockbridge Special Tobacco Manure. “ “ Grain Manure. “ “ Grass Top Dressing and Forage Crop Manure. Stockbridge Special Potato and Vegetable Manure. Bowker's Potato Manure. “ Hill and Drill Phosphate. “ Farm and Garden Phosphate or Ammoniated Bone Fertilizer. “ Bone and Potash, Square Brand. “ Tobacco Grower. “ Sure Crop Phosphate. “ Market Garden Manure. Nitrate of Soda. Dissolved Bone Black. Muriate of Potash.
Bradley Fertilizer Co., 92 State St., Boston, Mass.	Bradley's Superphosphate. “ Potato Manure. “ Complete Manure for Potatoes and Vegetables. “ Complete Manure for Top-Dressing Grass and Grain. “ Complete Manure for Corn and Grain. “ Pure Fine Ground Bone. “ Circle Brand, Ground Bone and Potash. “ Fish and Potash, Anchor Brand. “ Fish and Potash, Triangle A Brand. “ B. D. Sea Fowl Guano.

Firm.	*Brand of Fertilizer.*
Bradley Fertilizer Co., 92 State St., Boston, Mass.	Bradley's Original Coe's Superphosphate.
	“ Farmer's New Method Fertilizer.
	“ High Grade Tobacco Manure.
	“ Eclipse Phosphate.
	“ Potato Fertilizer.
Burwell, E. E., New Haven, Conn.	Dried Blood and Meat.
	Dissolved Bone Black.
	Double Sulphate Potash and Magnesia.
	Muriate of Potash.
	Nitrate of Soda.
Clark's Cove Fertilizer Co., Farlow Building, State St., Boston, Mass.	Bay State Fertilizer.
	Bay State Fertilizer G. G.
	Great Planet Manure.
	Potato and Tobacco Fertilizer.
	King Philip Guano.
Cleveland Dryer Co., 92 State St., Boston, Mass.	Cleveland Superphosphate.
	“ Potato Phosphate.
	“ Fertilizer.
Clinton, Elbert, Clintonville, Conn.	Ground Bone.
Coe Co., The E. Frank, 133-137 Front St., New York City.	E. Frank Coe's High Grade Potato Fertilizer.
	E. Frank Coe's High Grade Ammoniated Bone Superphosphate.
	E. Frank Coe's Alkaline Bone Phosphate.
	E. Frank Coe's Ground Bone and Potash.
	“ “ Gold Brand Excelsior Guano.
Cooper's Glue Factory, Peter, 17 Burling Slip, New York City.	Bone Dust.
Crocker Fertilizer and Chemical Co., Buffalo, New York.	Crocker's General Crop Phosphate.
	“ Universal Grain Grower.
	“ New England Tobacco Grower.
	“ Ammoniated Bone Superphosphate.
	“ Potato, Hop and Tobacco Phosphate.
	“ Ammoniated Wheat and Corn Phosphate.
	“ New Rival Ammoniated Superphosphate.
	“ Special Potato Manure.
	“ Vegetable Bone Superphosphate.
	“ Practical Ammoniated Superphosphate.
	“ Special Connecticut Tobacco Manure.
	“ Pure Ground Bone.

Firm.	*Brand of Fertilizer.*
Cumberland Bone Phosphate Co., State St. and Merchants Row, Boston, Mass.	Cumberland Superphosphate. " Potato Fertilizer. " Concentrated Phosphate. " Fertilizer.
Darling Fertilizer Co., The L. B., Pawtucket, R. I.	Potato and Root Crop Manure. Animal Fertilizer. Garden and Lawn. Tobacco Grower. Fine Bone. Animal "G."
Downs & Griffin, Derby, Conn.	Ground Bone.
Eastern Farm Supply Association, Montclair, N. J.	Carteret Manure for General Use.
Ellsworth, F., Hartford, Conn.	Shoemaker's Swift Sure Bone Meal. " " Superphosphate.
Great Eastern Fertilizer Co., Rutland, Vermont.	Great Eastern General Fertilizer. " " Northern Corn Special Fertilizer. " " Soluble Bone and Potash. " " Vegetable, Vine and Tobacco. " " Garden Special.
Hartford Fertilizer Co., Hartford, Conn.	Ground Bone.
Jefferds, John G., Worcester, Mass.	Ground Bone.
Kelsey, E. R., Branford, Conn.	Bone, Fish and Potash.
Lister's Agricultural Chemical Works, Newark, N. J.	Standard Superphosphate of Lime. Success Phosphate. Special Potato. Animal Bone and Potash.
Lowell Fertilizer Co., Lowell, Mass.	Lowell Bone Fertilizer. " Animal Fertilizer. " Potato Phosphate. " Vegetable and Vine. " Lawn Dressing. " Tobacco Fertilizer.
Luce Bros, Niantic, Conn.	Giant's Neck Superphosphate. Pure Dry Fish Guano. Bone, Fish and Potash.
Ludlam, Frederick, 108 Water St., New York City.	Cecrops or Dragon's Tooth. Cereal Brand.
Lyman, Chas. E., Middlefield, Conn.	Corn Manure. Potato Manure.

Firm.	*Brand of Fertilizer.*
Mapes' Formula and Peruvian Guano Co., 143 Liberty St., New York City.	Potato Manure.
	Complete Manure for General Use.
	Fruit and Vine Manure.
	Corn Manure.
	Fine Bone Dissolved.
	Complete Manure for Light Soils or Vegetable Manure.
	Tobacco Starter.
	Grass and Grain Spring Top-Dressing.
	Complete Manure " A " Brand.
	Tobacco Manure, Wrapper Brand.
	Seeding Down Manure.
Miles, G. W., Milford, Conn.	Fish Guano.
	IXL Ammoniated Bone Superphosphate.
	" Ceres " Complete.
Miller, G. W., Middlefield, Conn.	Ground Bone.
	Unexcelled Phosphate.
Milsom Rendering and Fertilizer Co., 963 William St., E. Buffalo, N. Y.	Buffalo Fertilizer.
	Potato, Hop and Tobacco Phosphate.
	Vegetable Bone Fertilizer.
	Wheat, Oats and Barley Phosphate.
	Potato, Hop and Tobacco Phosphate, Long Island Brand.
	Special Potato Fertilizer.
	Bone Meal.
	Erie King.
	Buffalo Guano.
	Cyclone Bone Meal.
	Dissolved Bone and Potash.
	Dissolved Bone.
	Buffalo Fertilizer (Long Island Brand).
Niagara Fertilizer Works, Buffalo, New York.	Niagara Wheat and Corn Producer.
	" Triumph.
	" Grain and Grass Grower.
	" Potato, Tobacco and Hop Fertilizer.
National Fertilizer Co., Bridgeport, Conn.	Chittenden's Complete Fertilizer.
	" Ammoniated Bone Phosphate.
	" Fish and Potash.
	" Market Garden.
	" Potato Phosphate.
	" Fine Ground Bone.
Nuhn, Frederick, Waterbury, Conn.	Self-Recommending Fertilizer.
Olds & Whipple, Hartford, Conn.	O. & W. Special Phosphate.
Pacific Guano Co., Box 1368, Boston, Mass.	Soluble Pacific Guano.
	Special Potato Manure.
	Nobsque Guano.
	High Grade General Fertilizer.

Firm.	*Brand of Fertilizer.*
Packers' Union Fertilizer Co., Box 1528, New York City.	Potato Manure. Gardeners' Complete Manure. Animal Corn Fertilizer. Oats and Clover Fertilizer. Universal Fertilizer.
Parks, C. D., Danbury, Conn.	Bone Meal. Nameless Fertilizer. Potato Manure.
Peck Bros., Northfield, Conn.	Pure Ground Bone.
Plumb & Winton Co., Bridgeport, Conn.	Ground Bone.
Pouleur, August, Windsor, Conn.	Pure Bone Meal.
Preston Fertilizer Co., Greenport, L. I.	Bone. Superphosphate. Potato, Hop and Onion Fertilizer.
Quinnipiac Co., 92 State St., Boston, Mass.	Quinnipiac Phosphate. " Potato Manure. " Market Garden Manure. " Ammoniated Dissolved Bone. " Fish and Potash, Crossed Fishes. " Fish and Potash, Plain. " Phosphate, Pine Island. " Havana Tobacco Fertilizer. " Grass Fertilizer. " Corn Manure. " Pure Bone Meal. " Dry Ground Fish. Tankage. Muriate of Potash. Sulphate of Potash. Nitrate of Soda. Sulphate of Ammonia. Dissolved Bone Black.
Read Fertilizer Co., Box 3121, New York City.	Read's Standard. Fish and Potash. Vegetable and Vine. Practical Potato Special.
Rogers & Hubbard Co., Middletown, Conn.	The Rogers & Hubbard Co's Pure Raw Knuckle Bone Flour. The Rogers & Hubbard Co's Pure Raw Knuckle Bone Meal. The Rogers & Hubbard Co's Strictly Pure Fine Bone. The Rogers & Hubbard Co's Oats and Top-Dressing. The Rogers & Hubbard Co's Soluble Potato Manure. The Rogers & Hubbard Co's Soluble Tobacco Manure.

Firm.	*Brand of Fertilizer.*
Rogers & Hubbard Co., Middletown, Conn.	The Rogers & Hubbard Co's Grain and Grass Fertilizer. Fairchild's Corn Formula and General Crops. The Rogers & Hubbard Co's Fruit Fertilizer.
Rogers Mfg. Co., Rockfall, Conn.	Potato Manure. Corn Manure. Complete Manure. Pure Ground Bone. Top-Dressing and Oat Manure. Tobacco Manure. Grass and Grain Manure.
Russia Cement Co., Gloucester, Mass.	Essex XXX Fish and Potash. " Manure for Corn and Grain. " Manure for Potatoes and Roots.
Sanderson, L., New Haven, Conn.	Old Reliable Superphosphate. Formula A. Pulverized Bone and Meat. Blood Bone and Meat. Fine Ground Bone. Muriate of Potash. High Grade Sulphate of Potash. Sulphate of Potash. Nitrate of Soda. Sulphate of Ammonia. Dissolved Bone Black.
Standard Fertilizer Co., Farlow Building, State St., Boston, Mass.	Standard Fertilizer. " Potato and Tobacco Fertilizer. " Guano. " Fine Ground Bone. " Complete Manure.
Walker, Stratman & Co., Pittsburgh, Pa.	Four Fold. Potato Special. Smoky City. Butchers' Bone Meal. Pure Raw Bone Meal. Big Bonanza.
Wheeler & Co., M. E., Rutland, Vermont.	High Grade Fruit Fertilizer. Grass and Oats. Potato Manure. High Grade Corn. Superior Truck. Electrical Dissolved Bone.
Wilcox Fertilizer Works, Mystic, Conn.	Wilcox Potato, Onion and Tobacco Manure. Wilcox Ammoniated Bone Phosphate. " Complete Bone Superphosphate. " High Grade Fish and Potash. " Dry Ground Fish Guano.

Firm.	*Brand of Fertilizer.*
Wilkinson & Co., Box 1807, New York City.	Economical Bone Fertilizer.
Williams & Clark Fertilizer Co., 27 William St., New York City.	Americus High Grade Special. " Ammoniated Bone Superphosphate. " Potato Phosphate. " Fine Wrapper Tobacco. " Corn Phosphate. Royal Bone Phosphate. Fish and Potash. Grass Manure. Pure Bone Meal. Americus Potato and Tobacco Fertilizer. Dry Ground Fish Guano.

SAMPLING AND COLLECTION OF FERTILIZERS.

During April, May and June, Mr. C. L. Backus of Andover, the sampling agent of this Station, visited ninety-four towns and villages of Connecticut to draw samples of Commercial Fertilizers for analysis. These places were distributed as follows:

Litchfield County,	8
Hartford "	23
Tolland, "	10
Windham "	7
New London "	10
Middlesex "	5
New Haven "	16
Fairfield "	15
	94

In these places the agent drew 589 samples, representing 229 brands of fertilizers.

In this way one or more samples were secured of most of the brands of fertilizers which are offered for sale within the State. When several samples of a single brand were drawn in different parts of the State the analysis was performed, not on any single sample, but on a mixture made of an equal weight of each of the several samples. Thus, it is believed, the average composition of the goods is more fairly represented than by the analysis of any single sample.

The Station agent is instructed in every case to open at least three packages of each brand for sampling, and if the number of packages is large, to take a portion from every tenth one, by means of a sampling tube which withdraws a section or core through the entire length of the bag or barrel.

As a rule, the Station will not analyze samples taken—

1. From dealer's stock of less than one ton.
2. From stock which has lain over from last season.
3. From stock which evidently is improperly stored, as in bags lying on wet ground or exposed to the weather, etc.

The Station desires the coöperation of farmers, farmers' clubs and granges in calling attention to new brands of fertilizers, and in securing samples of all goods offered for sale. *All samples must be drawn in strict accordance with Station's Instructions for Sampling, and must also be properly certified,* if the Station analysis is desired. A copy of these instructions and blank certificates will be sent on application.

ANALYSES OF FERTILIZERS.

During the year, 492 samples of commercial fertilizers and manurial waste-products have been analyzed. A classified list of them is given on page 100.

On a few of these samples analyses were made for private parties and charged for accordingly. A few samples also were analyzed at the request of other Experiment Stations in order to compare and test analytical methods. Results of the examination of all the samples, with these exceptions, are given in detail in the following pages.

Samples are analyzed as promptly as possible in the order in which they are received. As soon as an analysis is completed a copy of it is sent to the party who furnished the sample, and also to the manufacturer, in order that there may be opportunity for correction or protest, before the results are published.

The following "Explanations" are intended to embody the principles and data upon which the valuation of fertilizers is based, a knowledge of which is essential to a correct understanding of the analyses that are given on subsequent pages.

EXPLANATIONS CONCERNING THE ANALYSIS OF FERTILIZERS AND THE VALUATION OF THEIR ACTIVE INGREDIENTS.*

The Elements of Fertilizers.

The three chemical elements whose compounds chiefly give value, both commercial and agricultural, to fertilizers, are Nitrogen, Phosphorus and Potassium. The other elements found in fertilizers, viz: Sodium, Calcium, Magnesium, Iron, Silicon, Sulphur, Chlorine, Carbon, Hydrogen and Oxygen, which are necessary or advantageous to the growth of vegetation, are either so abundant in the soil or may be so cheaply supplied to crops, that they do not considerably affect either the value or cost of high-priced commercial fertilizers.

Nitrogen in fertilizers is, on the whole, the least abundant of their valuable elements, and is, therefore, their most costly ingredient.

Free Nitrogen is universally abundant, making up nearly four-fifths of the common air, and appears to be directly assimilable by various low vegetable organisms, and with aid of certain bacteria, by leguminous plants (the clovers, alfalfa, peas, beans, lentils, esparsette, lupins, vetches, lathyrus, peanut, yellow locust, honey locust, etc.), and by a few non-leguminous plants, carrying root nodules, viz: the Oleasters (*Eleagnus*), the Alders (*Alnus*), and a single family of coniferous trees (*Podocarpus*), but not at all, according to present evidence, by the cereals or other field and garden crops.

Organic Nitrogen is the nitrogen of animal and vegetable matters which is chemically united to carbon, hydrogen and oxygen. Some forms of organic nitrogen, as those of blood, flesh and seeds, are highly active as fertilizers; others, as found in leather and peat, are comparatively slow in their effect on vegetation, unless these matters are chemically disintegrated. Since organic nitrogen may often readily take the form of ammonia, it has been termed *potential ammonia.*

Ammonia (NH_3) *and Nitric Acid* (N_2O_5) are results of the chemical change of *organic nitrogen* in the soil and manure heap, and contain nitrogen in its most active forms. They occur in commerce—the former in sulphate of ammonia, the latter in nitrate of soda: 17 parts of ammonia, or 66 parts of pure sulphate of ammonia, contain 14 parts of nitrogen: 85 parts of pure nitrate of soda also contain 14 parts of nitrogen.

Phosphorus is, next to nitrogen, the most costly ingredient of fertilizers, wherein it exists in the form of phosphates, usually those of calcium, iron and aluminum, or in case of "superphosphates," to some extent in the form of free phosphoric acid.

Water-soluble Phosphoric Acid is phosphoric acid (or a phosphate) that freely dissolves in water. It is the characteristic ingredient of superphosphates, in which it is produced by acting on "insoluble" (or

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* Prepared and revised by the Director.

"citrate soluble") phosphates, with diluted sulphuric acid. Once well incorporated with the soil, it gradually "reverts" and becomes insoluble, or very slightly soluble, in water.

Citrate-soluble Phosphoric Acid signifies the phosphoric acid (of various phosphates) that is freely taken up by a hot strong solution of neutral ammonium citrate, which solution is therefore used in analysis to determine its quantity. The designation *citrate-soluble* is synonymous with the less explicit terms *reverted*, *reduced* and *precipitated*, which all imply phosphoric acid that was once easily soluble in water, but from chemical change has become insoluble in that liquid.

Recent investigation tends to show that water-soluble and citrate-soluble phosphoric acid are on the whole about equally valuable as plant food, and of nearly equal commercial value. In some cases, indeed, the water-soluble gives better results on crops ; in others the "reverted" is superior. In most instances there is probably little to choose between them.

Insoluble Phosphoric Acid implies various phosphates insoluble both in water and in hot solution of neutral ammonium citrate. The phosphoric acid of Canadian "Apatite," of South Carolina and Florida "Rock Phosphate" and of similar dense mineral phosphates, as well as that of "bone ash" and "bone black," is mostly insoluble in this sense, and in the majority of cases gives no visible good results when these substances, in the usual ground state, are applied to crops. They contain, however, a small proportion of citrate-soluble phosphoric acid, and sometimes, when they are reduced to extremely fine dust (floats) or applied in large quantities, especially on "sour soils" or in conjunction with abundance of decaying vegetable matter (humus), they operate as efficient fertilizers.

Available Phosphoric Acid is an expression properly employed in general to signify phosphoric acid in any form, or phosphates of any kind that serve to nourish vegetation. In the soil, phosphoric acid and all phosphates, whatever their solubilities as defined in the foregoing paragraphs, are more or less freely and extensively available to growing plants. Great abundance of "insoluble" phosphoric acid may serve crops equally well with great solubility of a small supply, especially when the soil and the crop carry with them conditions highly favorable to the assimilation of plant food.

In Commercial Fertilizers, "available phosphoric acid" is frequently understood to be the sum total of the "water soluble" and the "citrate-soluble," with the exclusion of the "insoluble."

The "insoluble phosphoric acid" in a commercial fertilizer costing $20 to $50 per ton, has very little or no value to the purchaser, because the quantity of it which can commonly go upon an acre of land has no perceptible effect upon the crop, and because its presence in the fertilizer excludes an equal percentage of more needful and much more valuable ingredients.

In Raw Bone the phosphoric acid (calcium phosphate) is nearly insoluble, because of the animal matter of the bones which envelops it ; but when the animal matter decays in the soil, or when it is disintegrated by boiling or steaming, the phosphate mostly remains in an available form. The phosphoric acid of "Basic-Slag" and of "Grand Cayman's Phosphate" is in some soils as freely taken up by crops as water-soluble phosphoric acid, but in other soils is much less available than the latter.

Phosphoric acid in all the Station analyses is reckoned as "anhydrous phosphoric acid" (P_2O_5), also termed among chemists phosphoric anhydride, phosphoric oxide, and phosphorus pentoxide.

POTASSIUM is the constituent of fertilizers which ranks third in costliness. In plants, soils and fertilizers, it exists in the form of various salts, such as chloride (muriate), sulphate, carbonate, nitrate, silicate, etc. Potassium itself is scarcely known except as a chemical curiosity.

Potash signifies the substance known in chemistry as potassium oxide (K_2O), which is reckoned as the valuable fertilizing ingredient of "potashes" and "potash salts." In these it should be freely soluble in water and is most costly in the form of sulphate, and cheapest in the form of muriate (potassium chloride). In unleached ashes of wood and of cotton-seed hulls it exists mainly as potassium carbonate.

VALUATION OF FERTILIZERS.

The valuation of a fertilizer, as practised at this Station, consists in calculating the *retail Trade-value* or *cash-cost* (in raw material of good quality) of an amount of nitrogen, phosphoric acid and potash equal to that contained in one ton of the fertilizer.

Plaster, lime, stable manure and nearly all of the less expensive fertilizers have variable prices, which bear no close relation to their chemical composition, but guanos, superphosphates and similar articles, for which $30 to $50 per ton are paid, depend for their trade-value exclusively on the substances *nitrogen, phosphoric acid and potash*, which are comparatively costly and steady in price. The trade-value per pound of these ingredients is reckoned from the current market prices of the standard articles which furnish them to commerce.

The consumer, in estimating the reasonable price to pay for high-grade fertilizers, should add to the *Trade-value of the above named ingredients* a suitable margin for the expenses of manufacture, etc.. and for the convenience or other advantage incidental to their use.

TRADE-VALUE OF FERTILIZER ELEMENTS, FOR 1896.*

The average trade-values or retail costs in market, per pound, of the ordinarily occurring forms of nitrogen, phosphoric acid and potash in raw materials and chemicals, as found in New England, New York and New Jersey markets during 1895, were as follows:

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* Adopted at a conference of representatives of the Connecticut, Massachusetts, New Jersey and Rhode Island Stations held in March, 1896.

	Cts. per lb.
Nitrogen in ammonia salts	15
nitrates	13½
Organic nitrogen in dry and fine ground fish, meat and blood and in mixed fertilizers	14
in cotton seed meal	12
in fine* bone and tankage	13½
in fine-medium* bone and tankage	12
in medium* bone and tankage	9
in coarse* bone and tankage	3
Phosphoric acid, water-soluble	5½
citrate-soluble †	5
of dry ground fine fish, bone and tankage	5
of fine-medium bone and tankage	4
of medium bone and tankage	2½
of coarse bone and tankage	2
of fine ground fish, cotton seed meal, castor pomace and wood ashes	4½
of mixed fertilizers (insoluble in ammonium citrate)	2
Potash as high-grade sulphate and in forms free from muriate (or chlorides)	5
as muriate	4½

The foregoing are, as nearly as can be estimated, the prices at which, during the six months preceding March last, the respective ingredients were retailed for cash, in our large markets, in those *raw materials* which are the regular source of supply. They also correspond to the average wholesale price for the six months ending March 1st, plus about 20 per cent. in case of goods for which we have wholesale quotations. The valuations obtained by use of the above figures will be found to correspond fairly with the *average retail prices* at the large markets of standard raw materials, such as:

Sulphate of Ammonia,
Nitrate of Soda,
Dried Blood,
Azotin,
Ammonite,
Muriate of Potash,
Sulphate of Potash,
Plain Superphosphates,
Dry Ground Fish,
Bones and tankage,
Ground South Carolina Rock.

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* Fine signifies smaller than $\frac{1}{50}$ inch; fine-medium between $\frac{1}{50}$ and $\frac{1}{25}$ inch; medium between $\frac{1}{25}$ and $\frac{1}{12}$ inch; coarse larger than $\frac{1}{12}$ inch.

† Dissolved from 2 grams of the fertilizer, previously extracted with pure water, by 100 c.c. neutral solution of ammonium citrate, sp. gr. 1.09, in 30 minutes, at 65° C., with agitation once in five minutes. Commonly called "reverted" or "backgone" Phosphoric Acid.

VALUATION OF SUPERPHOSPHATES, SPECIAL MANURES AND MIXED FERTILIZERS OF HIGH GRADE.

The Organic Nitrogen in these classes of goods is reckoned at the price of nitrogen in raw materials of the best quality, 14 cents.

Insoluble Phosphoric Acid is reckoned at 2 cents per pound. Potash is rated at 4¼ cents, if sufficient chlorine is present in the fertilizer to combine with it to make muriate. If there is more Potash present than will combine with the chlorine, then this excess of Potash is reckoned at 5 cents per pound.

In most cases the valuation of the ingredients in superphosphates and specials falls below the retail price of these goods. The difference between the two figures represents the manufacturer's charges for converting raw materials into manufactured articles and selling them. The charges are for grinding and mixing, bagging or barreling, storage and transportation, commission to agents and dealers, long credits, interest on investments, bad debts and, finally, profits.

The majority of the manufacturers agree that the average cost of mixing, bagging, handling and cartage ranges from $3.00 to $4.50 per ton.

In 1896 the average selling price of Ammoniated Superphosphates and Guanos was $31.56 per ton, the average valuation was $21.18 and the difference $10.38, an advance of 49.0 per cent. on the valuation and on the wholesale cost of the fertilizing elements in the raw materials.

In case of Special manures the average cost was $36.19, the average valuation $25.64 and the difference $10.55 or 41.1 per cent. advance on the valuation.

To obtain the Valuation of a Fertilizer we multiply the pounds per ton of nitrogen, etc., by the trade-value per pound. We thus get the values per ton of the several ingredients, and adding them together we obtain the total valuation per ton.

In case of *Ground Bone and Tankage*, the sample is sifted into the four grades just specified (see foot note, page 97), and we separately compute the nitrogen-value of each grade by multiplying the pounds of nitrogen per ton by the per cent. of each grade, taking $\frac{1}{100}$th of that product, multiplying it by the trade-value per pound of nitrogen in that grade, and taking this final product as the result in cents. Summing up the separate values of each grade thus obtained, together with the values of each grade of phosphoric acid, similarly computed, the total is the Valuation of the sample of bone. See page 97.

USES AND LIMITATIONS OF FERTILIZER VALUATION.

The uses of the "Valuation" are two-fold:

1. To show whether a given lot or brand of fertilizer is worth, as a commodity of trade, what it costs. If the selling price is not higher than the valuation, the purchaser may be tolerably sure that the price is reasonable. If the selling price is twenty to twenty-five per cent. higher than the valuation, it may still be a fair price; but in proportion as the cost per ton exceeds the valuation there is reason to doubt the economy of its purchase.

2. Comparisons of the valuation and selling prices of a number of similar fertilizers will generally indicate fairly which is the best for the money.

But the valuation is not to be too literally construed, for in some cases analysis cannot discriminate positively between the active and the inert forms of nitrogen, while the mechanical condition of a fertilizer is an item whose influence cannot always be rightly expressed or appreciated.

For the above first named purpose of valuation, the trade-values of the fertilizing elements which are employed in the computations should be as exact as possible, and should be frequently corrected to follow the changes of the market.

For the second named use of valuation frequent changes of the trade-value are disadvantageous, because two fertilizers cannot be compared as to their relative money-worth when their valuations are deduced from different data.

Experience leads to the conclusion that the trade-values adopted at the beginning of the year should be adhered to as nearly as possible throughout the year, notice being taken of considerable changes in the market, in order that due allowance may be made therefor.

Agricultural Value of Fertilizers.

The Agricultural Value of a fertilizer is measured by the benefits received from its use, and depends upon its fertilizing effect, or crop-producing power. As a broad, general rule, it is true that ground bone, superphosphates, fish-scraps, dried blood, potash salts, etc., have a high agricultural value which is related to their trade-value, and to a degree determines the latter value. But the rule has many exceptions, and in particular instances the trade-value cannot always be expected to fix or even to indicate the agricultural value. Fertilizing effect depends largely upon soil, crop and weather, and as these vary from place to place, and from year to year, it cannot be foretold or estimated except by the results of past experience, and then only in a general and probable manner.

CLASSIFICATION OF FERTILIZERS ANALYZED.

RAW MATERIALS.

1. *Containing Nitrogen as the Chief Valuable Ingredient.*

Nitrate of Soda	12
Sulphate of Ammonia	2
Dried Blood	1
Horn and Hoof	1
Cotton Seed Meal	51
Linseed Meal	9
Castor Pomace	7
Mustard Seed Cake	1
Preparations of Leather	4

2. *Containing Phosphoric Acid as the Chief Valuable Ingredient.*

Odorless Phosphate	1
Dissolved Bone Black	5
Dissolved Rock Phosphate	8

3. *Containing Potash as the Chief Valuable Ingredient.*

High Grade Sulphate of Potash	7
Double Sulphate of Potash and Magnesia	8
Phosphate of Potash	1
Muriate of Potash	12
"Potash Salts"	1

4. *Containing Nitrogen and Phosphoric Acid.*

Bone Manures	51
Tankage	13
Fish	11

MIXED FERTILIZERS.

Bone and Potash	3
Nitrogenous Superphosphates	116
Special Manures	95
Home Mixtures	11

MISCELLANEOUS FERTILIZERS AND MANURES.

Cotton Hull Ashes	33
Wood Ashes	19
Lime Kiln Ashes	2
Tobacco Stems and Dust	4
Muck	1
Peas and Beans	2
	492

DESCRIPTION AND ANALYSES OF FERTILIZERS.*

The samples referred to in the following pages, unless the contrary is stated, were drawn by an agent of the Station.

I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

Nitrate of Soda or Sodium Nitrate.

Nitrate of Soda is mined in Chili and purified there before shipment. It contains about 16 per cent. of nitrogen, equivalent to 97 per cent. of pure sodium nitrate. The usual guarantee is "96 per cent." of sodium nitrate, equivalent to 15.8 per cent. of nitrogen.

In rare cases cargoes have been found to contain sodium perchlorate which, even in small amount, is very injurious to vegetation.†

5801. Sold by the Mapes' Formula and Peruvian Guano Co., N. Y. Sampled and sent by H. G. Manchester, West Winsted.

5802. Sold by L. Sanderson, New Haven. Sampled and sent by H. G. Manchester.

6099. Sold by Quinnipiac Co., through Olds & Whipple, Hartford.

6100. Sold by Mapes' Branch, Hartford.

6142. Sold by L. Sanderson, New Haven. Sampled and sent by C. B. Sheldon, West Suffield.

6244. Sold by Taylor & Brush, N. Y. City. Sampled and sent by W. F. Whitney, Yalesville.

6261. Sold by Bowker Fertilizer Co., through W. O. Goodsell, Bristol.

6263. Sold by E. E. Burwell, East Haven. Sampled and sent by him.

6290. Sold by Taylor & Brush, N. Y. City. Sampled and sent by A. E. Plant, Branford.

6340. Sold by Bradley Fertilizer Co., Boston. Sampled and sent by C. J. Dewey, Buckland.

6344. Sold by L. Sanderson, New Haven.

6479. Bought by the Station of L. Sanderson for use in vegetation experiments.

All these samples, as is shown in the table, were of average composition, the per cent. of nitrogen ranging from 15.53 to 16.21.

The cost of nitrogen per pound has varied from 12.7 to 15.0 cents.

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* This chapter, pp. 101 to 168, with exception of pp. 156 to 163, has been prepared for publication by Dr. Jenkins. The analyses of fertilizers have all been made by Messrs. Winton, Ogden and Mitchell, chemists of the Station, with the assistance of Mr. Lange.

† Landw. Presse XXIII: 1896, 615.

ANALYSES OF NITRATE OF SODA.

	5801	**5802**	**6099**	**6100**	**6142**	**6244**	**6261**	**6263**	**6290**	**6340**	**6344**	**6479**
Moisture	2.36	2.50	1.00	2.09	2.23	1.70	2.00	2.28	1.54	2.49	1.75	------
Insoluble in Water	.19	.30	.11	.08	.33	.12	.15	.17	.11	.33	.19	------
Common Salt	.70	.95	.46	.74	1.71	.41	1.72	.64	.43	1.37	.89	------
Sodium Sulphate	.27	2.12	.12	.18	.34	.14	.30	.24	.11	.46	.20	------
Sodium Nitrate	96.48	94.13	98.31	96.91	95.39	97.63	95.83	96.67	97.81	95.35	96.97	------
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
Equivalent Nitrogen	15.90	15.53	16.21	15.98	15.73	16.10	15.81	15.94	16.14	15.73	15.99	15.77
Cost per ton	------	------	$46.00	44.00	45.00	------	45.00	48.00	------	40.00	48.00	------
Nitrogen costs cents per pound	------	------	14.2	13.8	14.3	------	14.2	15.0	------	12.7	15.0	------

SULPHATE OF AMMONIA, OR AMMONIUM SULPHATE.

This article, now made on a large scale as a by-product of gas works and coke ovens, usually contains over 20 per cent. of nitrogen, the equivalent of 94–97 per cent. of ammonium sulphate. The rest is chiefly moisture. The usual guarantee is 25 per cent. of ammonia, which is equivalent to 20.6 per cent. of nitrogen.

6300. Sold by the Quinnipiac Co., Boston, through Olds & Whipple, Hartford.

6343. Sold by L. Sanderson, New Haven.

ANALYSES OF SULPHATE OF AMMONIA

	6300	**6343**
Nitrogen	20.92	20.84
Equivalent Ammonia	25.40	25.30
Cost per ton	$65.00	70.00
Nitrogen costs cents per pound	**15.5**	**16.8**

DRIED BLOOD.

This consists of slaughter-house blood which has been dried by superheated steam or hot air. It is a finely pulverized, nearly odorless substance, red or nearly black in color, and rich in nitrogen that is quickly available to vegetation.

A sample of this material, **6021**, used in the Station vegetation experiments, contained 13.58 per cent. of nitrogen.

GROUND HORN AND HOOF.

We are informed that this material is made in Chicago from horns and hoofs that are steamed under high pressure, which makes them brittle, so that they can be ground to a fine powder.

A single sample, **6020**, obtained for vegetation experiments, contained 15.33 per cent. of nitrogen.

COTTON SEED MEAL.

This material is of two kinds, which are known in trade respectively as undecorticated and decorticated. In their manufacture cotton seed is first ginned to remove most of the fiber, then passed through a "linter" to take off the short fiber or lint

ANALYSES OF DECORTICATED COTTON SEED MEAL.

Station No.	Dealer.	Sampled by	Nitrogen.	Phosphoric Acid.	Potash.	Cost per Ton.	Nitrogen costs cents per pound.
6054	Olds & Whipple, Hartford	Walter W. Pratt, East Hartford	8.09	2.81	1.85	$22.50	**11.2**
6068	Olds & Whipple, Hartford	Eugene Brown, Windsor	8.17	2.81	1.85	23.00	**11.3**
6144	D. L. Brockett, Suffield	Chas. B. Sheldon, Suffield	7.67	2.81	1.85	22.00	**11.5**
6293	W. F. Fletcher, Southwick, Mass.	L R. Griffin, Granby	7.85	2.81	1.85	22.50	**11.5**
6296	L. J. Grant, Wapping	Station Agent	8.12	2.81	1.85	23.00	**11.5**
6113	James Perkins	James P. Spencer, Suffield	7.36	2.81	1.85	21.50	**11.6**
6171	American Cotton Oil Co.	R. W. Cowles, Tariffville	7.30	2.81	1.85	21.50	**11.7**
6151	C. H. Dexter's Sons, Windsor Locks	James Tobin, Windsor Locks	7.28	2.81	1.85	21.50	**11.8**
6172	C. M. Cox & Co., Boston, Mass.	R. W. Cowles, Tariffville	6.76	2.81	1.85	20.50	**12.9**
6028	Daniels Mill Co , Hartford	William Daly, East Windsor Hill	7.11	2.81	1.85	21.50	**12.0**
6045	J. E. Perkins, Suffield	F. B. Hathaway, Windsor Locks	7.06	2.81	1.85	21.50	**12.1**
6103	C. H. Dexter's Sons, Windsor Locks	John Mackey, Windsor Locks	7.26	2.81	1.85	22.00	**12.1**
6152	Daniels Mill Co., Hartford	Dan. O. King, Windsor Locks	7.18	2.81	1.85	22.00	**12.3**
6108	C. H. Dexter & Son, Windsor Locks	Charles D. Cannon, Windsor Locks	7.16	2.81	1.85	22.00	**12.3**
6069	Arthur Sykes, Suffield	E. M. Barnes, Thompsonville	7.22	2.81	1.85	22.25	**12.3**
6319	David Brockett, Suffield	Francis Granger, East Granby	7.50	2.81	1.85	23.00	**12.4**
5440	Olds & Whipple, Hartford	William S. Pinney, Suffield	7.09	2.81	1.85	22.00	**12.4**
5811	J. M. Williams, Manchester	W. H. Olcott, South Manchester	7.28	2.81	1.85	22.50	**12.4**
6140	C. H. Dexter & Son, Windsor Locks	John P. Griswold, Poquonock	7.12	2.81	1.85	22.00	**12.4**
6187	H. S. Chapman, 211 Broadway, N.Y.	H. S. Chapman & Co., Thompsonville	6.85	2.81	1.85	21.50	**12.5**
6037	James Perkins, Suffield	Charles H. Wells, Suffield	6.89	2.81	1.85	21.75	**12.6**
5888	Daniels Mill Co., Hartford	E. F. Thompson, Warehouse Point	6.81	2.81	1.85	21.50	**12.6**

Analyses of Decorticated Cotton Seed Meal.—*Continued.*

Station No.	Dealer.	Sampled by	Nitrogen.	Phosphoric Acid.	Potash.	Cost per Ton.	Nitrogen costs cents per pound.
6339	C. M. Cox & Co., Boston, Mass.	C. J. Dewey, Buckland	7.00	2.81	1.85	$22.00	**12.6**
5890	James Perkins, Suffield	Charles A. Birge, Suffield	7.00	2.81	1.85	22.00	**12.6**
5765	F. W. Brode & Co,	Lowell H. Brewer, Hockanum	6.96	2.81	1.85	22.00	**12.7**
6294	W. F. Fletcher, Southwick, Mass.	Alfred H. Griffin, Granby	7.11	2.81	1.85	22.50	**12.7**
6240	August Pouleur, Windsor	A. C. Bedortha, Windsor	7.13	2.81	1.85	22.75	**12.9**
6241	August Pouleur, Windsor	A. C. Bedortha, Windsor	7.04	2.81	1.85	22.75	**13.0**
6262	Chas. Cox & Co., Boston, Mass.	Carey Brothers, Windsor	7.06	2.81	1.85	22.75	**13.0**
6275	W. S. Pinney, Suffield	J. Edgar Phelps, Thompsonville	7.14	2.81	1.85	23.00	**13.0**
6053	W. W. Cooper, Suffield	C. D. Woodworth, Thompsonville	6.90	2.81	1.85	22.50	**13.1**
6036	W. W. Cooper, Suffield	Charles H. Wells, Suffield	6.91	2.81	1.85	22.50	**13.1**
6047	H. C. Aborn & Son, Ellington	H. W. Kibbe, Ellington	7.00	2.81	1.85	23.00	**13.3**
6112	W. W. Cooper, Suffield	O. C. Rose, West Suffield	6.71	2.81	1.85	22.50	**13.5**
6094	Joel H. Brewer, Hillstown	Station Agent	6.82	2.81	1.85	23.00	**13.6**
6117	W. W. Cooper, Suffield	E. J. Sheldon, West Suffield	6.66	2.81	1.85	22.50	**13.6**
5889	Daniels Mill Co., Hartford	Charles Pomroy, Suffield	6.28	2.81	1.85	21.50	**13.6**
6249	S. D. Viets, Springfield, Mass.	Virgil E. Viets, Copper Hill	6.68	2.81	1.85	22.50	**13.6**
6368	I. B. Phelan & Son, Windsor Locks	Charles A. Birge, Suffield	6.52	2.81	1.85	22.25	**13.7**
6150	James Perkins, Suffield	Charles A. Birge, Suffield	6.36	2.81	1.85	21.75	**13.7**
6110	W. W. Cooper, Suffield	Henry M. Rose, West Suffield	6.54	2.81	1.85	22.50	**13.8**
6046	J. E. Perkins, Suffield	E. S. Seymour, Windsor Locks	6.32	2.81	1.85	22.00	**13.9**
6029	T. B. Atwater, Plantsville	Miss M. A. Neale, Southington	6.32	2.81	1.85	24.00	**15.5**

remaining, then through machines which break and separate the hulls. The hulled seed is ground and the oil expressed. The ground cake from the presses is used as a cattle food and fertilizer. The hulls are burned for fuel in the oil factory and the ashes, which contain from 20 to 30 per cent. of potash, are also used as a fertilizer. In case of undecorticated meal the hulls and the ground press-cake are mixed together.

Nitrogen alone has been determined in most of the samples whose analyses follow. In these cases the per cents. of phosphoric acid and potash given in the table are the averages derived from all the analyses of decorticated meal made in the last two years at this Station. The per cent. amounts of phosphoric acid and potash in clear cotton seed meal do not vary so much in different samples as to make their determination necessary in order to determine the general quality of the sample.

Decorticated (hulled) Cotton Seed Meal.

In the table on pages 104 and 105 are given the analyses of forty-three samples of this material.

In the last column of the table is given the cost of nitrogen in each sample, valuing the phosphoric acid and potash in each at 4½ and 5 cents per pound respectively.

It appears that the nitrogen of decorticated meal has ranged from 8.17 to 6.28, averaging 7.05 per cent.

The retail cash cost per pound of nitrogen has ranged from 11.2 to 15.5 cents per pound, and the average cost has been 12.7 cents.

Decorticated Cotton Seed Meal continues to be the cheapest source of available nitrogen. Experiments indicate that it is as rapidly and fully available as the best forms of animal matter.

Undecorticated (Unhulled) Cotton Seed Meal.

The following analyses of dark, undecorticated meal, show the average composition of such goods :

6048 and **6134,** sent by Edgar Brewer, Hockanum.

5625. Sold as a mixture of hulls and meal by F. W. Brode & Co., Memphis, Tenn. Sampled and sent by L. H. Brewer, Hockanum.

ANALYSES OF UNDECORTICATED COTTON SEED MEAL.

	6048	6134	5625
Nitrogen	4.42	4.20	3.89
Phosphoric Acid	----	2.06	----
Potash	-- -	1.59	----
Cost per ton	$17.00	17.00	17.00
Nitrogen costs cents per pound	----	16.1	

Since the unhulled meal is sold for $5.00 less per ton than the bright yellow decorticated meal, it has been questioned whether the former might not be a cheaper source of nitrogen than the latter.

The analysis 6134 shows that nitrogen in the unhulled dark meal costs about 3½ cents per pound more than in prime yellow meal, and that it is a waste of money to buy "low grade" rather than "high grade" meal for use as a fertilizer at present prices.

LINSEED MEAL.

This material is the ground residue left after the extraction of oil either by pressure or solvents from linseed (flax seed). It has long been prized as a cattle feed, and during the season of 1896 was sold at prices which induced a considerable number of tobacco growers to use it as a fertilizer, apparently with good effect.

6052. Sold by Olds & Whipple, Hartford. Sampled and sent by J. A. DuBon, Poquonock.

6078. Sold by W. E. Pinney, Suffield. Sampled and sent by A. C. Russell, Suffield.

6276. Sold by Daniels Mill Co., Hartford. Sampled and sent by E. P. Brewer, Silver Lane.

6077. Specially prepared and screened New Process Linseed Meal. Made by Cleveland Oil Co., Cleveland, O. Sold by Olds & Whipple, Hartford. Sampled and sent by Clark Bros., Poquonock.

5627. Same stock as **6077.** Sampled by Olin Wheeler, Buckland.

6102. Sample of a car load bought of Cleveland Linseed Oil Co. Sampled and sent by E. F. Miller.

6217. Stock used in the Station tobacco experiments.

6027. Stock used in the Station vegetation experiments.

ANALYSES OF LINSEED MEAL.

	6052	6078	6276	6077	5627	6102	6217	6027
Nitrogen	6.93	6.62	6.28	6.67	6.48	6.28	6.72	5.10
Phosphoric Acid	1.96	1.92	1.83	1.69	1.66	1.69	1.89	----
Potash	1.24	1.07	1.30	1.05	1.41	1.26	1.30	----
Cost per ton	$20.00	19.50	19.00	20.00	20.00	20.00	----	----
Nitrogen costs cents per pound	12.3	12.6	12.8	13.0	13.2	13.7	----	

The average cost per pound of nitrogen in these samples has been about 13 cents, .3 cents per pound higher than in cotton seed meal.

CASTOR POMACE.

This is the ground residue of castor beans from which castor oil has been extracted. It is an excellent fertilizer, but extremely poisonous to animals, which often eat it greedily when the opportunity offers.

6297. Sold by Bowker Fertilizer Co., Boston. Stock of S. T. Weldon, Simsbury, and H. K. Brainard, Thompsonville.

6114. Made by H. J. Baker & Bro., N. Y. City. Stock of Webster & Atwater, New Britain.

6295. Stock of W. S. Pinney, Suffield. Sampled and sent by G. A. Harmon, Suffield.

6483. Stock of S. T. Weldon, Simsbury. Sampled and sent by A. L. Eno, Simsbury.

6220. Bought for use in the Station tobacco experiments.

6022. Red Seal Castor Pomace used in Station vegetation experiments.

6024. Collier Pomace used in Station vegetation experiments.

ANALYSES OF CASTOR POMACE.

	6297	6114	6295	6483	6220	6022	6024
Nitrogen	4.92	4.85	4.74	4.30	4.72	4.96	4.73
Phosphoric Acid	1.87	2.98	1.79	1.29	1.89	----	----
Potash	1.00	1.00	1.10	1.10	1.06	----	----
Cost per ton	$18.00	20.50	20.00	20.00	----	----	----
Nitrogen costs cents per pound	15.6	17.3	18.2	20.6	----	----	----

Castor Pomace is an expensive form of organic nitrogen at present prices and is used chiefly by certain tobacco growers who still prefer it to cotton seed meal. The Poquonock experiments indicate that cotton seed meal in equivalent quantity yields tobacco of the same quality in all respects as castor pomace, and at a much lower cost for fertilizers.

Mustard Seed Cake.

A sample of this material **6133,** sent by the Oil Seeds Pressing Co., N. Y. City, contained 4.93 per cent. of nitrogen, 2.00 of phosphoric acid and 1.12 of potash.

If sold for $16.00 or less per ton it would be as cheap a source of nitrogen as cotton seed and linseed meal.

Preparations of Leather.

As has been proved abundantly by experiment, leather, whether in its untreated state or steamed, or roasted and pulverized, has little value as a fertilizer. The State fertilizer law wisely forbids its use in any form as an ingredient of commercial fertilizers without explicit printed certificate of the fact, "such certificate to be conspicuously affixed to every package," etc.

The materials on which the following analyses were made were used in vegetation experiments to be described on following pages.

6134. Hemlock-tanned sole leather.

6135. Steamed leather, prepared from a portion of sample **6134** by heating it with water in the autoclave for two hours, under a pressure of 60 pounds to the square inch and drying the resulting gummy mass on the water bath.

6131. Roasted leather prepared from **6134** by heating the powdered leather, at 240° C. for four hours.

6136. Dissolved leather. 148 grams of sample **6134** and 100 grams of oil of vitriol, sp. gr. 1.84, were heated gradually, with constant stirring, till fumes of sulphurous acid appeared. Water was added and the mass digested, evaporated to dryness, and heated till sulphurous acid was evolved. Water was again added, the acid was nearly neutralized with carbonate of lime, and the whole dried on the water-bath.

Analyses of Leather.

	Raw Leather. **6134**	Steamed Leather. **6135**	Roasted Leather. **6131**	Dissolved Leather, etc. **6136**
Nitrogen	6.76	7.40	8.66	2.51

II. RAW MATERIALS OF HIGH GRADE CONTAINING PHOSPHORIC ACID AS THE CHIEF VALUABLE INGREDIENT.

Odorless Phosphate.

This material is pulverized basic Slag, a bye-product from the steel manufacture, similar to so-called Thomas Slag.

6444. Sold by Jacob Reese, 400 Chestnut St., Phila. Sampled from stock of A. J. Palmer, Branford.

It contained 18.72 per cent. of phosphoric acid, of which 7.81 per cent. is soluble in ammonium citrate by the conventional method used in the analysis of superphosphates.

Dissolved Bone Black.

Bone Black, made by subjecting bone to a red heat without access of air, is used in sugar refineries to decolorize sugar solutions. The waste bone black dried, and treated with oil of vitriol, makes a "superphosphate" of high grade which does not cake together on standing, but remains as a fine powder suitable for application to the land.

5899. Sold by L. Sanderson, New Haven.

6305. Sold by Bowker Fertilizer Co., through H. K. Brainard, Thompsonville.

6267. Sold by E. E. Burwell, Fair Haven. Sample sent by him.

5803. Sold by Mapes' F. & P. G. Co., N. Y. Sampled and sent by H. G. Manchester, West Winsted.

5804. Sold by L. Sanderson. Sampled and sent by H. G. Manchester, West Winsted.

Dissolved Rock Phosphate or Acid Rock.

This material, made by treating various mineral phosphates with oil of vitriol, is the most common source of the phosphoric acid of factory-mixed fertilizers.

6089. Sold by the Quinnipiac Co. through Olds & Whipple, Hartford.

6415. Electrical Dissolved Bone, made by M. E. Wheeler & Co., Rutland, Vt. From stock of Chas. J. Abell, Lebanon.

6428. Dissolved Bone, made by the Milsom Rendering and Fertilizer Co., Buffalo, N. Y., and sampled by them.

5900. Sold by the Berkshire Mills, Bridgeport.

6245. Sold by G. F. Taylor &. Brush, New York City. Sample sent by W. F. Whitney, Yalesville.

6503. Sold by Taylor & Brush, New York City. Sampled and sent by J. L. Rising, West Suffield.

	Analyses of Dissolved Bone Black.					Analyses of Dissolved Rock Phosphate.					
	5899	**6305**	**6267**	**5803**	**5804**	**6089**	**6415**	**6428**	**5900**	**6245**	**6503**
Soluble Phosphoric Acid	19.59	13.94	9.45	16.70	15.89	11.55	8.50	5.46	11.89	13.52	9.78
Reverted " "	.54	1.66	6.80	.18	.28	3.15	4.40	6.23	1.81	1.45	1.63
Insoluble " "	.39	.20	.66	.02	.04	1.39	.88	.44	.77	.38	.60
Total	20.52	15.80	16.91	16.90	16.21	16.09	13.78	12.13	14.47	15.35	12.01
Cost per ton	$24.00	20.00	24.00	----	----	20.00	20.00	----	----	----	11.00
"Available" phosphoric acid costs cents per pound	**5.9**	**6.5**	**7.4**	**----**	**----**	**6.6**	**7.6**	**----**	**----**	**----**	**4.7**

The prices of available phosphoric acid, here given, range from 5.9 to 7.4 cents per pound. In mixed car lots it has been bought for a little over 3 cents per pound.

III. RAW MATERIALS OF HIGH GRADE CONTAINING POTASH.

High Grade Sulphate of Potash.

This chemical should contain over 90 per cent. of pure potassium sulphate (sulphate of potash) or about fifty per cent. of potassium oxide, the same quantity as is supplied by muriate, and should be nearly free from chlorine.

6336. Sold by Bradley Fertilizer Co., Boston, Mass. Sampled and sent by C. J. Dewey, Buckland.

6032. Sold by L. Sanderson, New Haven.

6096. Sold by Mapes' F. & P. G. Co., Hartford Branch.

5797. Sold by Mapes' F. & P. G. Co. and **5799,** sold by L. Sanderson; both sampled and sent by Harry Manchester, West Winsted.

6218. Bought for use in the Station tobacco experiment.

6031. Bought for use in the Station vegetation experiments.

The analyses are given on page 114.

Double Sulphate of Potash and Magnesia.

This material is usually sold as "sulphate of potash" or "manure salt," on a guarantee of "48–50 per cent. sulphate," which is equivalent to 25.9–27.0 per cent. of potassium oxide. Besides some 46–50 per cent. of potassium sulphate, it contains over 30 per cent. of magnesium sulphate, chlorine equivalent to 3 per cent. of common salt, a little sodium and calcium sulphates, with varying quantities of moisture.

6301. Sold by the Quinnipiac Co., Boston, Mass., through E. A. Halliday, Suffield.

6033. Sold by L. Sanderson, New Haven.

6264. Sold by E. E. Burwell, Fair Haven.

6095. Sold by Olds & Whipple, Hartford.

6097. Sold by Mapes' F. & P. G. Co., Hartford Branch.

6243. Sold by Taylor & Brush, N. Y. City. Sampled by W. F. Whitney, Yalesville.

6219. Bought for use in the Station tobacco experiment.

Analyses on page 114.

PHOSPHATE OF POTASH.

6030. A sample of this material, used in the vegetation of experiments of 1896, contained:

Phosphoric Acid	37.48	per cent.
Potash	52.10	"

MURIATE OF POTASH.

Commercial muriate of potash contains about 80 per cent. of muriate of potash (potassium chloride), 15 per cent. or more of common salt (sodium chloride), and 4 per cent. or more of water.

It is generally retailed on a guarantee of 80 per cent. muriate, which is equivalent to 50.5 per cent. of potassium oxide.

6034. Sold by L. Sanderson, New Haven.

6265. Sold by E. E. Burwell, Fair Haven. Sample drawn by him.

6035. Sold by Preston Fertilizer Co., Greenpoint, N. Y., to S. D. Woodruff & Sons, Orange.

6338. Sold by Bradley Fertilizer Co., Boston, to C. J. Dewey, Buckland.

6143. Sold by L. Sanderson, New Haven. Sampled and sent by Chas. B. Sheldon, West Suffield.

6098. Sold by Mapes' F. & P. G. Co., Hartford Branch.

6303. Sold by Quinnipiac Co., Boston, through Olds & Whipple, Hartford.

6302. Sold by Bowker Fertilizer Co., Boston, Mass. Stock of J. E. Collins, Wapping.

Analyses on page 114.

POTASH SALTS.

6337. Sold by the Bradley Fertilizer Co. to C. J. Dewey, Buckland. Apparently is kainit.

Potash	18.18	per cent.
Cost	$14.00	"
Potash costs, cents per pound	3.9	

The cash retail prices of potash as high grade sulphate have ranged from 4.9 to 5.2 cents per pound; as double sulphate from 4.9 to 6.3 cents; as muriate from 3.9 to 4.4 cents per pound.

	ANALYSES OF HIGH GRADE SULPHATE OF POTASH.							ANALYSES OF DOUBLE SULPHATE OF POTASH AND MAGNESIA.						
	6336	**6032**	**6096**	**5797**	**5799**	**6218**	**6031**	**6301**	**6033**	**6264**	**6095**	**6097**	**6243**	**6219**
Equivalent Sulphate of Potash	90.5	91.4	91.4	90.8	90.8	90.7	99.5	47.3	51.8	48.1	47.7	46.8	51.8	48.8
Potash	48.89	49.42	49.40	49.10	49.07	48.98	53.79	25.56	28.01	25.98	25.76	25.30	28.00	26.44
Cost per ton	$48.00	50.00	51.00	----	---			25.00	30.00	28.00	32.00	32.00	----	
Potash costs, cents per pound	**4.9**	**5.0**	**5.2**	----	----			**4.9**	**5.3**	**5.4**	**6.2**	**6.3**		

ANALYSES OF MURIATE OF POTASH.

	6034	**6265**	**6035**	**6338**	**6143**	**6098**	**6303**	**6302**
Potash	54.13	52.06	52.16	50.38	49.51	51.83	51.78	47.50
Equivalent Muriate of Potash	86.0	82.8	82.9	80.1	78.7	82.4	82.4	75.5
Cost per ton	$42.50	42.00	43.00	42.00	42.50	45.00	45.00	42.00
Potash costs, cents per pound	**3.9**	**4.0**	**4.1**	**4.2**	**4.3**	**4.3**	**4.3**	**4.4**

IV. RAW MATERIALS CONTAINING NITROGEN AND PHOSPHORIC ACID.

BONE MANURES.

The terms "Bone Dust," "Ground Bone," "Bone Meal" and "Bone" applied to fertilizers, sometimes signify material made from dry, clean and pure bones; in other cases these terms refer to the result of crushing fresh or moist bones which have been thrown out either raw or after cooking, with more or less meat, tendon, and grease and—if taken from garbage or ash heaps—with ashes or soil adhering; again they denote mixtures of bone, blood, meat and other slaughter-house refuse which have been cooked in steam tanks to recover grease, and are then dried and sometimes sold as "tankage;" or finally, they apply to bone from which a large share of the nitrogenous substance has been extracted in the glue manufacture. The nitrogen of all these varieties of bone when they are in the same state of mechanical subdivision has essentially the same fertilizing value.

The method adopted for the valuation of bone manures, which takes account of their mechanical condition as well as chemical composition, is explained on page 98.

1. *Bone Manures Sampled by Station Agents.*

In the following table are given analyses of twenty-two samples of bone drawn by the Station agents. See pages 116 and 117.

The average cost per ton has been $31.18; the average valuation $28.17, showing that the Station schedule of valuations for bone has been somewhat lower than is justified by the average selling price of bone.

Analyses calling for Special Notice.

Mechanical analyses of the three brands of The Rogers & Hubbard Co.'s bone as represented by samples **6120, 6121** and **6122,** having shown the bone to be coarser than in 1895, at request of the manufacturers other samples of each brand, **6332,**

BONE MANURES. SAMPLED BY

Station No.	Name or Brand.	Manufacturer.
6441	Chittenden's Ground Bone.	National Fertilizer Co., Bridgeport.
5894	Ground Bone.	Berkshire Mills, Bridgeport.
6440	Bone Meal.	C. D. Parks, Danbury.
6435	Pure Ground Bone.	Downs & Griffin, Derby.
6090	Bone Meal.	Hartford Fertilizer Co., Hartford.
6443	Self-Recommending Fertilizer.	Frederick Nuhn, Waterbury.
6439	Plumb & Winton's Bone.	Plumb & Winton Co., Bridgeport.
6156	Swift-Sure Bone Meal.	M. L. Shoemaker & Co., Philadelphia, Pa.
6442	Bone Meal.	Milsom Rendering & Fertilizer Co., Buffalo, N. Y.
6437	Ground Bone.	L. B. Darling Fertilizer Co., Pawtucket, R. I.
6154	Pure Bone Meal.	Quinnipiac Co., Boston, Mass.
6436	Ground Bone Meal.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.
6157	Pure Ground Bone.	Rogers Mfg. Co., Rockfall.
6120	The Rogers & Hubbard Co.'s Raw Knuckle Bone Flour.	The Rogers & Hubbard Co., Middletown.
6122	The Rogers & Hubbard Co.'s Raw Knuckle Bone Meal.	Rogers & Hubbard Co., Middletown.
6121	The Rogers & Hubbard Co.'s Strictly Pure Fine Bone.	Rogers & Hubbard Co., Middletown.
6434	Pure Bone Meal.	Williams & Clark Fertilizer Co., N. Y.
6158	Pure Bone Dust.	Peter Cooper's Glue Factory, N. Y.
6092	Cyclone Bone Meal.	The Milsom Rendering & Fertilizer Co., Buffalo, N. Y.
6438	Pure Ground Bone.	Peck Bros., Northfield.
6155	Fine Ground Bone.	Bradley Fertllizer Co., Boston, Mass.
5895	Ground Bone.	L. Sanderson, New Haven.

STATION AGENT. ANALYSES.

Dealer.	Dealers' cash price per ton.	Valuation per ton.	Percentage Diff. between cost and valuation.	Chemical Analysis.		Mechanical Analysis.			
				Nitrogen.	Phos. Acid.	Finer than $\frac{1}{50}$ inch.	From $\frac{1}{50}$ to $\frac{1}{25}$ inch.	From $\frac{1}{25}$ to $\frac{1}{12}$ inch.	Coarser than $\frac{1}{12}$ inch.
			Valuation exceeds cost.						
H. T. Childs, Woodstock.	***$30.00**	$31.49	4.7	1.80	29.18	74	18	6	2
F. Hallock & Co., Birmingham.	32.00								
Manufacturer.	**30.00**	31.32	4.2	2.00	28.57	72	20	6	2
Raymond Bros., South Norwalk.	**29.00**	30.22	4.0	4.22	20.29	77	20	3	
Manufacturer.	30 00								
Manufacturer.	**30.00**	30.42	1.4	2.44	29.56	48	30	22	
			Cost exceeds valuation.						
Manufacturer.	**25.00**	24.93	.3	3.00	22.64	45	30	13	12
Apothecaries Hall, Waterbury.	**28.00**	27.92	.3	4.16	22.00	58	19	11	12
Manufacturer.	**30.00**	29.40	2.0	4.04	21.81	64	22	13	1
E. A. Buck & Co., Willimantic.	**35.00**	34.24	2.2	5.86	21.88	58	33	9	
W. J. Warner, Gilead.	**30.00**	29.12	3.0	3.61	24.43	56	21	19	4
J. A. Lewis, Willimantic.	**30.00**	28.84	4.0	3.08	23.62	61	29	10	
W. L. L. Spencer, Lebanon.	**30.00**	28.58	4.9	2.94	24.49	58	27	14	1
Olds & Whipple, Hartford.	30.00								
A. C. Middlebrook, No. Wilton.	**36.00**	32.45	10.9	1.60	31.69	73	12	12	3
Manufacturer.	**30.00**	26.75	12.1	4.67	21.35	28	38	34	
Manufacturer.	**37.00**	32.71	13.1	3.66	25.45	62	35	3	
Manufacturer.	**36.00**	31.22	15.3	4.00	24.36	46	47	7	
Manufacturer.	**30.00**	25.50	17.7	3.70	23.62	34	28	27	11
S. A. Flight, New Haven.	**30.00**	25.44	17.9	2.72	22.76	54	21	23	2
Gavet Bros., Westport.	30.00								
E. F. Miller, Ellington.	**30.00**	24.98	20.1	1.51	28.96	54	14	13	9
W. K. Ackley, East Hartford.	**36.00**	27.70	29.9	2.96	24.96	54	23	16	7
W. H. Scott & Co., Terryville.	30.00	19.90	40.7	4.16	20.72	14	22	38	26
Strong & Tanner, Winsted.	32.00								
	28.00								
J. B. Alexander, New Britain.	**33.00**	23.40	41.0	2.97	19.31	44	39	17	
Manufacturer.	**33.00**	23.08	42.9	4.05	26.00	1	33	56	10

* The figures in heavy type, of this column, are used in calculating the percentage difference.

6331 and **6334**, were very carefully drawn at the factory and mechanically analyzed. The result for both years are as follows:

MECHANICAL ANALYSES.

	RAW KNUCKLE BONE FLOUR.			RAW KNUCKLE BONE MEAL.			STRICTLY PURE FINE BONE.		
	1895	1896		1895	1896		1895	1896	
	4774	**6120**	**6332**	**4902**	**6122**	**6331**	**4923**	**6121**	**6334**
Fine, smaller than $\frac{1}{50}$ inch	71	62	53	60	46	50	45	34	28
Fine medium, from $\frac{1}{50}$ to $\frac{1}{25}$ inch,	29	35	45	27	47	38	23	28	25
Medium, from $\frac{1}{25}$ to $\frac{1}{12}$ inch	0	3	2	13	7	12	24	27	31
Coarse, larger than $\frac{1}{12}$ inch	0	0	0	0	0	0	8	11	16
	100	100	100	100	100	100	100	100	100

The samples taken in 1896 are seen to be somewhat coarser than those examined in 1895.

2. *Bone Manures Sampled by Manufacturers and by Private Individuals.*

In the table, page 119, are given analyses of six samples drawn by manufacturers and of thirteen drawn by private individuals.

Sample **6490** was sent to the Station as Electrical Dissolved Bone, with a printed statement guaranteeing only phosphoric acid in the three forms. There is evidently some mistake in the name of the brand, for the sample was clearly a bone meal.

Burned Bone.

6138. Bought of the Rogers Manufacturing Co., Rockfall, Ct., by John B. Smith, Conn. Valley Orchard Co. Sampled by Earl Cooley, Berlin.

The sample was understood to represent ground bone which had been damaged in a fire at the storehouse. It contained .20 per cent. of nitrogen and 40.12 per cent. of phosphoric acid.

The nitrogen and phosphoric acid of bone ash are not readily available as fertilizers till they have been dissolved by an acid.

TANKAGE.

After boiling or steaming meat scrap, bone and other slaughterhouse waste, fat rises to the surface and is removed, the soup is run off, and the settlings are dried and sold as tankage. As analyses show, "tankage" has a very variable composition. In general it contains more nitrogen and less phosphoric acid than bone.

BONE MANURES. SAMPLED BY MANUFACTURERS AND PRIVATE INDIVIDUALS.

Station No.	Name or Brand.	Manufacturer or Dealer.	Sampled and Sent by	Dealer's Cash Price per Ton.	Valuation per Ton.	Chemical Analysis.		Mechanical Analysis.			
						Nitrogen.	Phos. Acid.	Less than $\frac{1}{50}$ inch.	From $\frac{1}{50}$ to $\frac{1}{25}$ inch.	From $\frac{1}{25}$ to $\frac{1}{12}$ inch.	Coarser than $\frac{1}{12}$ inch.
6191	Bone.	Elbert Clinton, Clintonville.	Manufacturer.	$26.50	$16.81	4.13	20.93	5	17	31	47
6431	Pure Ground Bone.	Crocker Fertilizer and Chemical Co., Buffalo. N. Y.	Manufacturer.	--------	25.84	4.12	25.38	24	19	55	2
6081	Ground Bone.	Downs & Griffin, Derby.	Manufacturer.	--------	31.66	2.06	28.68	72	20	7	1
6239	Bone.	August Pouleur, Windsor.	Manufacturer.	--------	31.62	2.29	29.77	60	24	15	1
6433	Pure Raw Bone Meal.	Walker, Stratman & Co., Pittsburgh, Pa.	Manufacturer.	--------	29.54	3.81	24.50	51	26	22	1
6432	Butcher's Bone Meal.	Walker, Stratman & Co., Pittsburgh, Pa.	Manufacturer.	--------	18.09	2.24	13.16	77	16	7	--
6137	Ground Bone.	L. B. Darling Fertilizer Co., Pawtucket, R. I.	Earl Cooley, Berlin.	33.00	29.61	2.56	25 61	61	32	7	--
6105	Bone.	J. G. Jefferds, Worcester, Mass.	Perrin & Calkins, W. Woodstock.	31.00	33.88	2.06	30.27	75	22	3	--
5881	Ground Bone.	J. D. Leach, Willimantic,	C. B. Pomeroy, Jr., Willimantic.	25.00	17.48	4.00	20.33	14	17	21	48
5882	Ground Bone.	J. D. Leach, Willimantic.	C. B. Pomeroy, Jr., Willimantic.	25.00	22.39	3.85	21.97	14	31	51	4
6041	Bone Meal.	Monroe, Lalor & Co., Oswego.	Byron Loomis, Suffield.	30.00	28.63	3.92	23.64	54	22	15	9
5269	Fine Ground Bone.	L. Sanderson, New Haven.	F. E. Blakeman, Stratford.	--------	20.84	3.18	17.71	37	28	33	2
6141	Fine Ground Bone.	L. Sanderson, New Haven.	Chas. B. Sheldon, W. Suffield.	32.00	26.00	3.66	21.79	44	26	30	--
6342	Ground Bone.	L. Sanderson, New Haven.	Geo. F. Platt & Son, Milford.	-------	24.78	3.86	24.42	14	36	49	1
6238	Ground Bone.	Taylor & Brush, New York City.	W. F. Whitney.	--------	30.43	2.72	27.63	54	30	15	1
6292	Bone.	Taylor & Brush, New York City.	A. E. Plant, Branford.	--------	32.83	3.14	26.14	81	13	5	1
6447	Ground Bone.	Geo. F. Taylor & Brush, N. Y.	H. C. C. Miles, Milford.	24.00	31.45	2.62	27.25	72	17	10	1
6490	Electrical Dissolved Bone.	M. E. Wheeler & Co., Rutland, Vermont.	Chas. Sanford, Roxbury.	--------	27.09	2.79	25.77	47	27	16	10
6277	Fine Ground Bone.	Wilcox Fertilizer Works, Mystic.	Lawrence Daly, E. Windsor Hill.	29.00	31.98	2.24	28.63	72	20	6	2

Sampled by Station Agents.

6091. Tankage. Sold by the Quinnipiac Co., Boston, through Olds & Whipple, Hartford.

5897. Blood, Bone and Meat, and **5898,** Pulverized Bone and Meat, both sold by L. Sanderson.

6104. Tankage. Sold by L. B. Darling Fertilizer Co., Pawtucket, R. I. Sample from stock of J. H. Webb, New Haven.

5896. Tankage. Sold by Taylor & Brush, New York City. Sample from stock of S. D. Woodruff & Sons, Orange.

Sampled by Seller.

6266. Dried Blood and Meat. Sold by E. E. Burwell, Fair Haven.

Sampled by Private Parties.

5805. Tankage. Sold by L. B. Darling Fertilizer Co. Sample sent by J. H. Webb.

5883. No. 1 Tankage. Made by J. D. Leech, Willimantic. Sampled and sent by C. B. Pomeroy, Willimantic.

5629. Tankage. Made by Plumb & Winton, Bridgeport. Sampled and sent by S. E. Curtis, Stratford.

5794. Tankage. Sold by L. Sanderson, New Haven. Sampled and sent by J. H. Webb, New Haven.

5795. Tankage. Made by Sperry & Barnes, New Haven. Sampled and sent by J. H. Webb.

6446. Tankage. Sold by Taylor & Brush, New York City. Sampled and sent by H. C. C. Miles, Milford.

The low valuations of samples **5883** and **5795** are due to their coarse mechanical condition.

DRY GROUND FISH.

This residue from the manufacture of fish oil is often sprinkled with diluted oil of vitriol, to hinder decay during drying, whereby the fish bones are softened and to some extent dissolved.

6304. Made by Luce Brothers, Niantic.

6087. Made by Geo. W. Miles, Agent, Milford. From stock of Olds & Whipple, Hartford.

6115. Sold by Quinnipiac Co., Boston, through F. S. Bidwell, Windsor Locks.

ANALYSES OF TANKAGE.

Mechanical Analysis.	**6091**	**5897**	**5898**	**6104**	**5896**	**6266**	**5805**	**5883**	**5629**	**5794**	**5795**	**6446**
Fine, smaller than $\frac{1}{50}$ inch	66	45	58	59	69	61	68	10	61	61	35	83
Fine medium, from $\frac{1}{50}$ to $\frac{1}{25}$ inch	32	37	30	31	28	19	22	17	24	23	17	15
Medium, from $\frac{1}{25}$ to $\frac{1}{12}$ inch	2	14	12	9	3	16	10	28	14	13	27	2
Coarse, larger than $\frac{1}{12}$ inch	0	4	0	1	0	4	0	45	1	3	21	0
	100	100	100	100	100	100	100	100	100	100	100	100
Chemical Analysis.												
Nitrogen	5.65	6.50	5.28	6.22	5.42	7.55	6.08	4.47	5.71	6.70	6.79	4.69
Phosphoric Acid	15.97	12.86	16.75	13.88	16.46	10.46	12.92	8.24	10.08	12.92	9.59	17.28
Cost per ton	$27.00	33.00	36.00	----	----	28.00	----	30.00	25.00	----	----	----
Valuation per ton	$29.40	26.17	27.94	27.92	29.35	27.21	27.18	11.07	22.99	27.69	20.12	28.96

6345. Made by Wilcox Fertilizer Co., Mystic. From stock of John Thompson, Ellington.

6408. Sold by Williams & Clark Fertilizer Co., New York City, through F. C. Gould, Silver Lane.

5796. Made by Geo. W. Miles, Agent, Milford. Sampled by Geo. S. Gillette, Milford.

ANALYSES OF DRY GROUND FISH.

	6304	6087	6115	6345	6408	5796
Nitrogen as nitrates	----	.72	----	----	----	----
as ammonia	1.45	1.08	.42	.10	.50	1.02
organic	7.06	5.76	9.00	8.98	7.57	7.18*
Total nitrogen	8.51	7.56	9.42	9.08	8.07	8.20
Soluble phosphoric acid	.94	1.14	.86	.67	.58	1.13
Reverted phosphoric acid	5.41	5.20	3.39	5.03	8.19	4.72
Insoluble phosphoric acid	.23	.88	2.45	1.31	.91	.82
Total phosphoric acid	6.58	7.22	6.70	7.01	9.68	6.67
Cost per ton	$26.00	32.00	32.00	32.00	30.00	32.00
Valuation per ton	$30.65	28.11	31.78	31.73	31.89	29.45

* Includes some nitrate nitrogen.

MIXED FERTILIZERS.

BONE AND POTASH.

6192. Square Brand Bone and Potash, made by the Bowker Fertilizer Co., Boston, Mass. Stock of C. T. Leonard, Norwich, $29.00 per ton, and P. L. Lathrop, Coventry, $28.00 per ton.

6193. Bone and Potash, made by E. Frank Coe, N. Y. Sampled from stock of H. B. Sherwood, Southport, $26.00 per ton, and J. A. Isham, Columbia, $29.00 per ton.

6145. Dissolved Bone and Potash, made by The Milsom Rendering and Fertilizer Co., Buffalo, N. Y. Sampled from stock of G. M. Cox, Vernon, $30.00 per ton.

MECHANICAL ANALYSES OF BONE AND POTASH.

	6192	6193	6145
Fine, smaller than $\frac{1}{50}$ inch	64	62	----
Fine medium, from $\frac{1}{50}$ to $\frac{1}{25}$ inch	24	22	----
Medium, from $\frac{1}{25}$ to $\frac{1}{12}$ "	10	12	----
Coarse, larger than $\frac{1}{12}$ "	2	4	----
	100	100	100

Chemical Analyses of Bone and Potash.

Organic Nitrogen	1.71	2.10	----
Soluble Phosphoric Acid	----	----	6.67
Reverted " "	----	----	2.07
Insoluble " "	----	----	.22
Total " "	13.50	15.79	8.96
Potash	2.30	2.90	2.05*
Cost per ton	$29.00	26.00	30.00
Valuation per ton	$18.36	21.51	11.44

* Partly as sulphate.

No. **6145.** Contains no nitrogen, and is a mixture of acid phosphate and potash salts, but not "bone and potash" in the usually accepted meaning of the term.

Nitrogenous Superphosphates and Guanos.

Here are included those mixed fertilizers containing nitrogen, phosphoric acid and in most cases potash, which are not designed by their manufacturers for use on any special crop. "Special Manures" are noticed further on.

1. *Samples drawn by Station Agents.*

In the tables on pages 128 to 137 are tabulated the analyses of eighty-seven brands, made on samples collected by the Station agents.

Guarantees.

Of the eighty-eight analyses of nitrogenous superphosphates, given in the tables, twenty-seven are below the maker's minimum guarantee in respect of one ingredient and five in respect of two ingredients.

Thus thirty-six per cent., or more than one-third of these fertilizers, do not fulfil the manufacturers' guarantees.

In twenty-five cases the deficiency is in potash, and numerous protests have been made by manufacturers who claimed that their goods were mixed to contain decidedly more potash than was shown by the Station analysis. In every case the Station has repeated the potash determination in response to the protest, in many cases has drawn other samples of the same brand for analysis, has referred some samples to other chemists, and has most carefully tested and demonstrated the accuracy of our methods of analysis. In no instance has any error been found in the results first reported.

The following analyses, we are advised by the manufacturers, show less potash than the goods were believed to contain. The special cases are here given in detail to indicate the care which the Station exercises in doing the work of fertilizer analysis which is required by law.

6320. Great Planet A brand and **6322,** King Philip Alkaline Guano, both made by the Clark's Cove Fertilizer Co. On receiving the protest of the manufacturer a re-test of potash was made in each sample, which confirmed the test already reported.

6326. General Crop Phosphate, made by the Crocker Fertilizer Co., Buffalo. Repetition of the potash determination confirmed the result previously reported.

6380. Cumberland Concentrated Phosphate, made by the Cumberland Bone Fertilizer Co., Boston. The manufacturers called for a portion of our sample, in which their chemist found 8.27 per cent. of potash, while the figure reported by the Station was 6.22. Careful repetition of our determination gave 6.24 per cent. The amount guaranteed was 7 per cent.

6359. Chittenden's Complete Fertilizer, sold by the National Fertilizer Co., Bridgeport. This sample was a mixture of equal weights of eight samples drawn in various places. The per cent. of potash found was 4.82.

The manufacturer protested that the per cent. of potash found was not only below their guarantee, but below the calculated composition of the goods, and below what had been found by their chemist in samples of the product of each day's manufacture at the works.

A re-test of the sample with specially prepared reagents gave 4.90 per cent. A portion of the same sample was sent to the chemist of the company, by request, who reported 5.48 per cent.

At the same time, for another purpose, the reagents and method of potash determination used in the Station laboratory were subjected by Mr. Winton to a thorough re-examination with the result that potash was determined with uniform accuracy, both in pure salts and in mixtures containing all the impurities found in commercial fertilizers, the total error being less than 0.3 per cent. of the quantity of potash present; *i. e.* in a mixture containing 5.00 per cent. of potash, repeated analyses would show figures ranging from 4.985 to 5.015 per cent.

Potash was next separately determined in each of the eight samples from which No. **6359** had been prepared, with the following results, 4.47, 5.45, 3.49, 5.46, 5.14, 4.01, 3.76, 5.79.

These determinations show the range of composition observed in different lots of the same brand; the average, 4.74, is nearly the same figure which was first obtained by analysis of the mixture No. **6359**.

A new mixture was then made of equal weights of these eight samples and analyzed by this Station. It was also divided with the greatest care into five portions, which were sent to the laboratories of two Agricultural Stations, to two commercial chemists, and to the chemist of a fertilizer works, requesting in each case a determination of the potash soluble in water. No explanation regarding the sample was given. Following are the reports received:

	Average.
Station I, Chemist A, 4.83, 4.89, 4.89	4.87
" B, 5.00, 4.90	4.95
" C, 5.01	5.01
Average of all determinations	**4.92**
Station II, 4.89, 4.90	**4.90**
This Station, 4.78, 4.80, 4.87, 4.80, 4.74, 4.88, 4.81*	**4.81**
Chemist of Fertilizer Works	**4.89**
Commercial Chemist A	**5.11**
" " B	**5.26**

* One or more determinations in each of the five samples.

A sample of the same brand, No. **6492,** drawn by our agent at the company's works in Bridgeport, from a stock of 20 tons, the full analysis of which appears in the table, page 133, contained considerably more potash, 5.46 per cent.

In sample No. **6363,** Chittenden's Ammoniated Bone Superphosphate, the manufacturers claim more than two per cent. of potash. This Station found 1.91. Small samples were sent by us at request of the manufacturer to two commercial chemists, who found 2.41 and 2.45 per cent. respectively.

6289. Soluble Pacific Guano, made by the Pacific Guano Co., Boston, Mass. This sample is guaranteed to contain over 2 per cent. of potash. Our analysis showed but 1.9, which was objected to by the manufacturer.

As the same brand contained, however, two per cent. more of available phosphoric acid than the guarantee, it is likely that some inequality in mixing accounts for both discrepancies.

6386. High Grade General Fertilizer, made by the Pacific Guano Co., Boston.

6.16 per cent. of potash was found by the Station analysis. The manufacturer asked for a portion of the sample, and in this their chemist reported 8.25 per cent. A re-test made at this Station showed 6.07 per cent. The manufacturers reported that on receipt of the second test they referred their sample to a commercial chemist, who found 8.45 per cent.

The whole remaining original sample was then finely pulverized and divided into three portions. One of these was sent to another Station laboratory, and the second to a commercial chemist, with the request to determine potash soluble in water. The results reported were:

			Average.
Commercial Chemist			6.35
Station Chemist A,	5.89	Average	5.92
“ “ B,	5.99		
“ “ C,	5.80		
Conn. Station,	5.70, 5.80, 5.77		5.78

Messrs. M. L. Shoemaker & Co., manufacturers of No. **6251**, Swift Sure Superphosphate, protested that no chlorides were used in the manufacture of their goods, and that the amount of chlorine found, 1.87 per cent., was inexplicable except by error in the determination. The analysis was repeated with the same result.

Another sample of Swift Sure Superphosphate, No. **6456**, was sent by F. Ellsworth, of Hartford, with request for a chlorine determination.

Our analysis showed .59 per cent. This determination was unsatisfactory to the manufacturer, who requested us to send samples to two commercial chemists, each of whom reported only a trace. After correspondence, one of them repeated the test with certain precautions which we had found necessary and then reported .53 per cent., substantially the same percentage as we at first reported.

6360. Royal Bone Phosphate, made by the Williams & Clark Fertilizer Co., N. Y., was found by our analysis to contain 1.90 per cent. of potash.

The manufacturer protested that this figure did not represent the average composition of the goods, but a re-test confirmed the accuracy of the test first reported.

Analysis No. **6384** is of a sample drawn by our agent from stock of L. H. Grant, Broadbrook, that purported to be Ceres Complete Fertilizer, made by George W. Miles, Agent, Milford. The analysis of this fertilizer is as follows:

Nitrogen as nitrates	.29
Nitrogen as ammonia	.56
Nitrogen, organic	2.14
Total nitrogen	2.99
Soluble phosphoric acid	5.10
Reverted " "	2.22
Insoluble " "	2.21
Total " "	9.53
Potash as muriate	2.44
Total potash	4.86
Cost	$38.00
Valuation	21.78

The manufacturer protests that this analysis does not at all correspond with the guaranteed composition of the Ceres brand, the widest discrepancy being in the potash, of which ingredient 7 per cent. is guaranteed, and that so far as the nitrogen and phosphoric acid are concerned, it corresponds very closely with the composition of the IXL Ammoniated Superphosphate, made by him, which is given in the table, page 128, Analysis No. **6167**.

As the manufacturer's protest did not reach the Station till these pages were ready for the printer, it has not been possible to secure and analyze another sample of the Ceres brand.

Cost and Valuation.

Cost.

The method used to ascertain the retail cost price of the superphosphates is as follows:

The sampling agents inquire and note the price at the time each sample is drawn. The analysis, when done, is reported to each dealer from whom a sample was taken, with an enclosed postal card addressed to the Station, and a request to note on it whether the retail cash price is correctly given and to mail to the Station.

From the data thus obtained the average prices are computed.

NITROGENOUS SUPERPHOSPHATES AND GUANOS, SAMPLED BY THE STATION.

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealers Cash Price per Ton.
6414	Carteret Manure for general use.	Eastern Farm Supply Association, Montclair, N. J.	F. S. Bidwell, Windsor Locks.	$29.00
6197	Bone, Fish and Potash.	E. R. Kelsey, Branford.	J. E. Wooding, New Haven	20.00
			Wilson & Burr, Middletown.	26.00
				23.00
6088	Pure Fine Bone Dissolved in Sulphuric Acid.	Mapes' Formula and Peruvian Guano Co., N. Y. City.	Mapes' Branch, Hartford.	30.00
6406	Unexcelled Phosphate.	Geo. W. Miller, Middlefield.	Manufacturer.	30.00
6389	Fish and Potash, Pequot Brand.	Quinnipiac Co., Boston, Mass.	A. I. Martin, Wallingford.	22.00
6228	Harvest Home Phosphate.	H. J. Baker & Bro., N. Y. City.	Webster & Atwater, New Britain.	27.00
			Wm. G. Humphrey, Canton Center.	27.50
6230	Lowell Bone Fertilizer.	Lowell Fertilizer Co., Lowell, Mass.	Bugbee Bros., Willimantic.	27.00
			W. H. Anderson, Putnam.	30.00
6252	Essex XXX Fish and Potash.	Russia Cement Co., Gloucester, Mass.	J. A. Lewis, Willimantic.	28.00
6282	Animal Fertilizer, G. Brand.	L. B. Darling Fertilizer Co., Pawtucket, R. I.	J. H. Lynch, Ellington.	28.00
			F. S. Bidwell, Windsor Locks.	30.00
				29.00
6226	Quinnipiac Market Garden Manure.	Quinnipiac Co., Boston, Mass.	L. A. Grannis, Fair Haven.	35.00
			C. H. Banks, Greenfield Hill.	35.00
			F. S. Bidwell, Windsor Locks.	38.00
			Olds & Whipple, Hartford.	38.00
6367	Ammoniated Bone Superphosphate.	Preston Fertilizer Co., Greenpoint, L. I.	Calvin G. Wilcox, Merrow.	30.00
			Newell St. John, Simsbury.	30.00
6371	Old Reliable Superphosphate.	L. Sanderson, New Haven	Manufacturer.	30.00
6395	Complete Bone Superphosphate.	Wilcox Fertilizer Works, Mystic.	Browning & Gallup, New London.	29.00
6203	Gardeners' Complete Manure.	Packers' Union Fertilizer Co., N. Y. City.	W. H. Terry, Willimantic.	34.00
6392	Ammoniated Dissolved Bone.	Quinnipiac Co., Boston, Mass.	Gault Bros., Westport.	28.00
6386	High Grade General Fertilizer.	Pacific Guano Co., Boston, Mass.	J. A. Paine, Danielson.	34.00
6167	IXL Ammoniated Bone Superphosphate.	George W. Miles, Milford.	H. B. Sherwood, Southport.	26.00
6251	Swift Sure Superphosphate.	M. L. Shoemaker & Co., Philadelphia, Pa.	L. S. Ellsworth, Simsbury.	----
			E. A. Buck & Co., Willimantic.	35.00
			F. Ellsworth, Hartford.	36.00
5893	Complete Fertilizer.	Berkshire Mills, Bridgeport.	Manufacturer.	35.00
6376	Garden Special.	Great Eastern Fertilizer Co., Rutland, Vt.	J. G. Schwink, Meriden.	35.00
6394	High Grade Fish and Potash.	Wilcox Fertilizer Works, Mystic.	Browning & Gallup, New London.	30.00

ANALYSES.

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
5.52	13.6	.59	.46	2.51	3.56	*2 5*	4.16	5.45	.62	10.23	----	9.61	*8.0*	5.82	5.82	*5.0*
0.19	13.9	----	.86	3.04	3.90	*3.3*	2.64	2.47	.14	5.25	*4.0*	5.11	----	.37	3.71	*4.0*
5.82	16.2	----	----	2.18	2.18	*2.1*	7.48	10.75	.92	19.15	----	18.23	*12.0*	-----	-----	----
5.72	16.6	----	----	2.00	2.00	*1.5*	4.06	6.86	1.30	12.22	*11.5*	10.92	----	9.19	9.19	*8.0*
8.22	20.7	.62	.23	1.72	2.57	*2.5*	3.15	4.47	1.94	9.56	*7.0*	7.62	*6.0*	.80	2.40	*2.0*
1.76	24.0	2.89	.30	.76	3.95	*1.0*	3.40	4.38	1.32	9.10	*9.0*	7.78	*8.0*	2.53	2.53	*2.0*
1.76	24.0	----	----	2.66	2.66	*2.5*	4.22	6.27	.42	10.91	*6.0*	10.49	*5.0*	3.59	3.59	*3.0*
2.34	25.3	----	----	2.37	2.37	*2.1*	4.13	7.38	3.75	15.26	*12.0*	11.51	*10.0*	2.53	2.53	*2.2*
3.09	25.6	----	----	----	2.40	*2.1*	5.09	5.78	1.28	12.15	*7.0*	10.87	*6.0*	4.98	4.98	*4.0*
.24	28.5	1.21	.50	2.01	3.72	*3.3*	5.07	4.29	1.22	10.58	*9.0*	9.36	*8 0*	7.20	7.20	*7.0*
3.29	28.8	----	----	2.57	2.57	*2 5*	5.37	6.77	2.39	14.53	----	12.14	*9.0*	.63	2.53	*2.0*
3.13	29.7	.11	.22	2.63	2.96	*1.7*	6.77	4.39	.85	12.01	*10.0*	11.16	*7.0*	2.92	2.92	*2.0*
2.21	30.6	----	----	2.54	2.54	*2.1*	6.00	5.08	.77	11.85	*9.0*	11.08	*8.0*	3.45	3.45	*3.0*
.93	31.1	1.05	----	1.67	2.72	*2.5*	6.38	1.29	.65	8.32	*10.0*	7.67	*8.0*	10.93	10.93	*10.0*
.36	31.1	.14	----	2.34	2.48	*1.7*	4.74	5.67	1.64	12.05	*10.0*	10.41	*9.0*	3.21	3.21	*2.0*
.91	31.2	1.42	----	2.14	3.56	*3.3*	5.02	4.63	.99	10.64	*10.0*	9.65	----	6.16	6.16	*7.0*
.64	32.4	----	.90	2.14	3.04	*2.8*	4.96	1.68	2.85	9.49	----	6.64	*8.0*	2.97	2.97	*2.0*
.37	32.8	.86	----	2.20	3.06	*2 5*	7.30	4.45	1.73	13.48	----	11.75	*9.0*	2.49	4.97	*4.0*
.00	34.6	.59	----	2.22	2.81	*2.5*	6.75	3.12	1.62	11.49	*10.0*	9.87	*8.0*	.21	6.83	*6.0*
.69	36.2	.46	----	2.78	3.24	*3.3*	5.38	2.27	.82	8.47	----	7.65	*6.0*	9.05	9.05	*8.0*
.91	36.9	----	----	3.68	3.68	*3.3*	3.15	3.34	.41	6.90	*6.0*	6.49	*5.0*	5.16	5.16	*4.0*

* See page 126.

Nitrogenous Superphosphates and Guanos, Sampled by the Station.

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6396	Ammoniated Bone Phosphate.	Wilcox Fertilizer Works, Mystic.	Browning & Gallup, New London.	**$31.00**
6313	Complete Manure A. Brand.	Mapes' F. & P. G. Co., N. Y. City.	Mapes' Branch, Hartford.	**34.00**
6174	High Grade Universal Fertilizer.	Packer's Fertilizer Co., N. Y. City.	W. H. Terry, Willimantic.	25.00
			Thos. McClimon, Greenville.	**26.00**
			Nathan S. Bushnell, Taftville.	26.00
6308	Animal Fertilizer.	L. B. Darling Fertilizer Co., Pawtucket, R. I.	F. S. Bidwell, Windsor Locks.	**34.00**
6194	Formula A.	L. Sanderson, New Haven.	L. A. Granniss. Fair Haven.	**35.00**
6377	Superior Truck Fertilizer.	M. E. Wheeler & Co., Rutland, Vt.	E. A. Hoyt, Ridgefield.	**36.00**
6325	Standard Pure Bone Superphosphate.	Lister's Agricultural Chemical Works, Newark, N. J.	Albertus N. Clark, Milford.	**30.00**
6183	Market Garden Manure.	Bowker Fertilizer Co., Boston, Mass.	Browning & Gallup, New London.	**38.00**
			C. T. Leonard, Norwalk.	40.00
6165	Complete Fertilizer.	Rogers Mfg. Co., Rockfall.	Manufacturer.	**32.00**
6314	Complete Manure for Light Soils.	Mapes' F. & P. G. Co., N. Y. City.	Mapes' Branch, Hartford.	**41.00**
6355	Giant's Neck Superphosphate.	Luce Bros., Niantic.	Manufacturer.	**30.00**
6327	Success Fertilizer.	Lister's Agricultural Chemical Works, Newark, N. J.	Albertus N. Clark, Milford.	**26.00**
6320	Great Planet A.	Clark's Cove Fertilizer Co., Boston, Mass.	John Dolbear, Poquetanuck.	**37.00**
			W. H, Phillips, Chaplain.	40.00
6380	Cumberland Concentrated Phosphate.	Cumberland Bone Fertilizer Co., Boston, Mass.	A. J. Palmer, Branford.	**38.00**
6207	Vegetable Bone Phosphate.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.	F. B. Newton, Plainville.	**40.00**
			Orlando Jones, Highwood.	43.00
6361	Formula A.	L. Sanderson, New Haven.	Joseph Pierpont, North Haven.	34.00
			E. B. Clark & Sons, Milford.	**35.00**
			S. A. Chalker, Saybrook.	35.00
6381	Complete Manure for General Use.	Mapes' F. & P. G. Co., N. Y. City.	Mapes' Branch, Hartford.	**37.00**
6369	Gold Brand Excelsior Guano.	E. Frank Coe Co., N. Y. City.	J. A. Isham, Columbia.	34.50
			Walkley & Damery, Wethersfield.	37.00 **35.00**
6229	A. A. Ammoniated Bone Superphosphate.	H. J. Baker & Bro., N. Y. City.	Strong & Tanner, Winsted.	**35.00**
			Webster & Atwater, New Britain.	37.50
6362	Chittenden's Market Garden Manure.	National Fertilizer Co., Bridgeport.	G. A. & H. B. Williams, Silver Lane.	**33.00**
			D. N. Benton, Guilford.	33.00
6257	Hill and Drill Phosphate.	Bowker Fertilizer Co., Boston, Mass.	P. L. Lathrop, Coventry.	35.00
			H. B. Coger, Hawleyville.	36 00
				33.00

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
$22.57	37.4	----	.55	2.73	3.28	*2.5*	1.65	5.92	1.79	9.36	*7.0*	7.57	*6 0*	5.36	5.36	*5.0*
24.73	37.5	.73	1.84	.38	2.95	*2.5*	7.68	4.80	.53	13 01	*12.0*	12.48	*10.0*	2.97	3.02	*2.5*
18,89	37.6	trace	----	1.49	1.49	*.8*	7.12	1.96	.89	9.97	----	9.08	*8.0*	5.08	5.08	*5.0*
24.69	37.7	----	.55	3.37	3.92	*3.3*	1.55	5.73	1.59	8.87	*10.0*	7.28	*6.0*	5.42	5.42	*4.0*
25.32	38.2	.53	.28	2.44	3.25	*3.3*	6.86	3.43	1.25	11.54	*10.0*	10.29	----	5.27	5.27	*6.0*
25.95	38.7	.78	----	2.72	3.50	*3.3*	5.97	2.37	.62	8.96	----	8.34	*7.0*	7.81	7.81	*8.0*
21.53	39.3	----	.44	2.05	2.49	*2.3*	9.38	1.68	2.04	13.10	----	11.06	*10.0*	1.83	1.83	*1.5*
27.17	39.9	1.25	----	1.45	2.70	*2.5*	6.32	2.75	3.35	12.42	*8.0*	9.07	*6.0*	9.65	9.65	*10.0*
22.62	41.5	.77	----	1.63	2.40	*2 2*	5.95	5.05	1.08	12.08	*10.0*	11.0	----	4.39	4.39	*5.0*
28.91	41.8	1.02	.65	3.26	4.93	*4.9*	4.05	4.28	.94	9.27	*8.0*	8.33	*6.0*	6.62	6.62	*6.0*
21.08	42.3	----	.62	2.56	3.18	*3.3*	4.64	1.12	.10	5.86	*5.0*	5.76	----	.25	5.81	*5.0*
18.24	42.5	----	----	1.47	1.47	*1.2*	8.98	1.80	2.10	12.88	----	10.78	*9.5*	.74	1.67	*2.0*
*25.96	42.6	1.75	----	1.84	3.59	*2.9*	4.77	4.27	.89	9.93	----	9.04	*8.0*	6.89	6.89	*7.0*
*26.48	43.5	1.23	----	2.31	3.54	*3.3*	5.15	5.02	1.00	11.17	*10.0*	10.17	*8.0*	6.22	6.22	*7.0*
27.85	43.6	----	----	5.24	5.24	*4.9*	5.71	.93	.40	7.04	----	6.64	*6.0*	6.46	6.46	*5.0*
24.30	44.0	1.04	.27	1.93	3.24	*3.3*	4.66	3.65	.76	9.07	*10.0*	8.31	*8.0*	4.08	6.61	*6.0*
25.39	45.7	.76	.32	2.52	3.60	*3.3*	3.04	7.29	.74	11.07	*10.0*	10.33	*8.0*	4.88	4.88	*4.0*
23.84	46.8	----	.85	1.79	2.64	*2.5*	7.68	1.44	.78	9.90	----	9.12	*8.0*	.53	6.13	*6.0*
23.69	47.7	.40	1.42	1.26	3.08	*2.5*	9.49	1.47	.39	11.35	----	10.96	*10.0*	3.06	3.06	*2.0*
22.10	49.3	----	----	2.40	2.40	*2.5*	1.01	7.93	1.78	10.72	*8.0*	8.94	*7.0*	6.26	6.26	*6.0*
22.07	49.5	.84	----	1.84	2 68	*2.5*	8.00	3.17	1.41	12.58	*12.0*	11.17	*9.0*	2.36	2.36	*2.0*

* See page 124.

NITROGENOUS SUPERPHOSPHATES AND GUANOS, SAMPLED BY THE STATION.

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6365	Standard Complete Manure.	Standard Fertilizer Co., Boston, Mass.	Nathan S. Bushnell, Taftville.	**$38.00**
			A. L. Kuren, Tolland.	40.00
6366	Chittenden's Fish and Potash.	National Fertilizer Co., Bridgeport.	G. A. & H. B. Williams, Silver Lane.	**30.00**
			T. H. Eldridge, Norwich.	32.00
5892	Ammoniated Bone Phosphate.	Berkshire Mills, Bridgeport.	Manufacturer.	**30.00**
6213	Americus Brand Ammoniated Bone Superphosphate.	Williams & Clark Fertilizer Co., N. Y. City.	F. C. Gould, Silver Lane.	**33.00**
			F. B. Austin, Silver Mine.	33.00
			Edw. L. Strong, Colchester.	34.00
6403	Smoky City Phosphate.	Walker, Stratman & Co., Pittsburgh, Pa.	White and Juno, Rockville.	30.00
6352	Ammoniated Bone Superphosphate.	Crocker Fertilizer and Chemical Co., Buffalo, N. Y.	Carlos E. Kibbe, Wapping.	**33.00**
6184	Farmers' New Method Fertilizer.	Bradley Fertilizer Co., Boston, Mass.	D. L. Clark, Milford.	**30.00**
			J. B. Alexander, New Britain.	33.00
6375	Buffalo Fertilizer.	Milsom Rendering & Fertilizer Co., Buffalo, N. Y.	W. H. Bishop, Andover.	**30.00**
6212	Quinnipiac Phosphate.	Quinnipiac Co., Boston, Mass.	L. A. Granniss, Fair Haven.	32.00
			F. S. Bidwell, Windsor Locks.	**33.00**
			A. I. Martin, Wallingford.	34.00
6385	Vegetable Bone Fertilizer.	Milsom Rendering & Fertilizer Co., Buffalo, N. Y.	E. A. Halliday, Suffield.	**40.00**
6132	O. & W. Special Phosphate.	Olds & Whipple, Hartford.	Manufacturer.	**36.00**
6492	Chittenden's Complete Fertilizer.	National Fertilizer Co., Bridgeport.	Manufacturer.	**38.00**
6359	Chittenden's Complete Fertilizer.	National Fertilizer Co., Bridgeport.	E. B. Clark & Sons, Milford.	35.00
			G. A. & H. B. Williams, Silver Lane.	**38.00**
			H. T. Child, Woodstock.	38.00
			H. J. Humphrey, Simsbury	40.00
			L. H. Grant, Broad Brook.	40 00
			F. Hallock & Co., Birmingham.	40.00
6196	Patent Superphosphate.	Bradley Fertilizer Co., Boston, Mass.	Raymond Bros., So. Norwalk.	33.00
			F. S. Bidwell, Windsor Locks	**34.00**
			Manchester Elevator Co., Manchester.	36.00
6349	Nameless Fertilizer.	C. D Parks, Danbury.	Manufacturer.	**30.00**
6410	Bay State Fertilizer.	Clark's Cove Fertilizer Co., Boston, Mass.	John Ballard, Thompson.	**34.00**
			H. F. Standish, Andover.	34.00
6398	Fish and Potash.	Williams & Clark Fertilizer Co., N. Y. City.	George H. Sloan, Windsorville.	**30.00**
6175	High Grade Ammoniated Bone Phosphate.	E. Frank Coe Co., N. Y. City.	J. A. Isham, Columbia.	31.00
			Walkley & Damery, Wethersfield.	33.25
				32.00
6256	Sure Crop Phosphate.	Bowker Fertilizer Co., Boston, Mass.	City Coal and Wood Co., New Britain.	**28.00**

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total	
$25.20	50.8	1.65	----	1.83	3.48	*3.3*	4.80	4.55	1.26	10.61	*9.0*	9.35	*8.0*	5.88	5.88	*7.0*
19.88	50.9	----	----	2.46	2.46	*2.8*	1.46	5.70	4.00	11.16	*8.0*	7.16	----	4.22	4.50	*4.0*
19.77	51.7	----	----	1.95	1.95	*1.7*	7.63	3.24	1.62	12.49	*10.0*	10.87	*8.0*	2.26	2.26	*2.0*
21.64	52.5	.29	---	2.38	2.67	*2.5*	6.40	4.71	1.64	12.75	*10.0*	11.11	*9.0*	1.99	1.99	*2.0*
19.63	52.9	----	----	1.44	1.44	*1.2*	9.66	3.04	.90	13.60	*15.0*	12.70	*12.0*	1.74	1.74	*2.0*
21.48	53.6	----	----	2.74	2.74	*2.9*	9.34	2.02	.49	11.85	----	11.36	*10.0*	1.47	1.47	*1.1*
19.53	53.6	.27	----	1.85	2.12	*1.7*	5.60	4.16	1.37	11.13	*10.0*	9.76	*8.0*	3.06	3.06	*3.0*
19.44	54.3	----	----	2.76	2.76	*1.9*	7.30	2.06	.50	9.86	----	9.36	*8.0*	.65	1.48	*1.5*
21.33	54.7	.32	----	2.34	2.66	*2.5*	6.56	4.40	1.32	12.28	*10.0*	10.96	*9.0*	1.97	1.97	*2.0*
25.77	55.2	----	----	3.80	3.80	*4.1*	8.35	1.39	.37	10.11	*9.0*	9.74	*8.0*	4.89	4.89	*5.0*
22.92	57.0	.75	----	2.65	3.40	*2.5*	6.38	3.50	1.38	11.26	*10.0*	9.88	*9.0*	.72	2.47	*2.0*
*24.01	58.3	.56	.48	2.33	3.37	*3.3*	3.70	5.34	.55	9.59	*10.0*	9.04	*8.0*	5.46	5.46	*6.0*
†23.89	59.0	.46	.55	2.22	3.23	*3.3*	3.55	6.25	.69	10.49	*10.0*	9.80	*8.0*	4.82	4.82	*6.0*
21.30	59.6	.33	----	2.47	2.80	*2.5*	6.72	3.91	1.22	11.85	*11.0*	10.63	*9.0*	1.89	1.89	*2.0*
18.75	60.0	.23	----	2.31	2.54	*2.1*	.40	6.92	1.17	8.49	*8.0*	7.32	----	4.26	4.26	*3.0*
21.10	61.1	.27	----	2.39	2.66	*2.5*	6.24	4.72	1.00	11 96	*10.0*	10.96	*9.0*	1.89	1.89	*2.0*
18.55	61.7	----	.20	2.16	2.36	*2.1*	2.78	5.31	1.16	9.25	*6.0*	8.09	*4.0*	3.41	3.41	*4.0*
19.77	61.8	----	----	2.22	2.22	*2.1*	7.66	2.38	2.25	12.29	*11.0*	10.04	*9.0*	.33	1.87	*1.8*
17.09	63.8	.29	----	.94	1.23	*.8*	7.29	3.39	2.70	13.38	*10.0*	10.68	*8.0*	1.32	1.32	*1.0*

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* See p. 125.

† See p. 124.

Nitrogenous Superphosphates and Guanos, Sampled by the Station.

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6105	Fish and Potash, A Brand.	Bradley Fertilizer Co., Boston, Mass.	Billings & Hallock, Meriden.	**$33.00**
6393	Standard Fertilizer.	Standard Fertilizer Co., Boston, Mass	Nathan S. Bushnell, Taftville.	**32.00**
6379	Big Bonanza, Welcome Brand.	Walker, Stratman & Co., Pittsburgh.	J. W. Euerle, Stratford.	**33.00**
6260	Sea Fowl Guano.	Bradley Fertilizer Co., Boston, Mass.	F. S. Bidwell, Windsor Locks.	**32.00**
6311	Cumberland Superphosphate.	Cumberland Bone Phosphate Co., Boston, Mass.	William Bartell, Ore Hill.	**32.00**
6211	Fish, Bone and Potash.	Read Fertilizer Co., N. Y.	L. D. Post, Andover.	**30.00**
			J. A. Silliman, New Canaan.	30.00
6350	Animal Bone and Potash.	Lister Agricultural Chemical Works, Newark, N. J.	Edward Hall, Plainfield.	**28.00**
6363	Chittenden's Ammoniated Bone Phosphate.	National Fertilizer Co., Bridgeport.	E. B. Clark & Sons, Milford.	26.00
			L. H. Grant, Broad Brook.	**30.00**
			T. H. Eldridge, Norwich.	32.00
			Horace Humphrey, Simsbury.	32.00
6321	Bay State Fertilizer G. G.	Clark's Cove Fertilizer Co, Boston, Mass.	W. H. Phillips, Chaplin.	**33.00**
			J. M. Burke, South Manchester.	34.00
6279	Soluble Bone and Potash.	Great Eastern Fertilizer Co., Rutland, Vt.	William L. Baxter, New Canaan.	**26.00**
			F. V. Cantrell, Darien	26.00
			Thomas Richmond, New Milford.	34.00
6180	Standard Superphosphate.	Read Fertilizer Co., New York.	John R. Babcock, Mystic.	29.00
			L. D. Post, Andover.	**30.00**
6322	King Philip Alkaline Guano.	Clark's Cove Fertilizer Co., Boston, Mass.	J. M. Burke, South Manchester.	**28.00**
6289	Soluble Pacific Guano.	Pacific Guano Co., Boston, Mass.	E. A. Burnham, Andover.	34.00
			George Webster, Rockville.	**35.00**
			Saxton & Strong, Bristol.	35.00
			John A. Paine, Danielson.	36.00
6326	General Crop Phosphate.	Crocker Fertilizer and Chemical Co., Buffalo, N. Y.	Bugbee Bros., Willimantic.	**23.00**
6374	Cumberland Fertilizer.	Cumberland Bone Phosphate Co., Boston, Mass.	A. J. Palmer.	**28.00**
6255	Farm and Garden Phosphate.	Bowker Fertilizer Co., Boston, Mass.	S. E. Brown, Collinsville.	35.00
			C. T. Leonard, Norwalk.	36.00
				32.00
6391	Fish and Potash, Crossed Fishes Brand.	Quinnipiac Co., Boston, Mass.	Olds & Whipple, Hartford.	**34.00**
6360	Royal Bone Phosphate.	Williams & Clark Fertilizer Co., New York City.	J. S. Buell, Madison.	26.00
			E. L. Strong, Colchester.	**28.00**
			J. H. Avery, Lebanon.	29.00
6205	New Rival Ammoniated Superphosphate.	Crocker Fertilizer and Chemical Co., Buffalo, N. Y.	Orlando Jones, Highwood.	30.00
			E.A. Davis & Son, Danielson	34.00
			F. B. Newton, Plainville.	34 00
				33.00

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
$19.98	65.2	....	....	2.24	2.24	*2.1*	5.42	4.17	1.23	10.82	*12.0*	9.59	*8.0*	3.43	3.43	*4.0*
19.12	67.4	....	....	2.16	2.16	*2.1*	5.33	4.59	1.40	11.32	*10.0*	9.92	*8.0*	2.29	2.29	*2.0*
19.65	67.9	....	....	1.44	1.44	*1.7*	9.84	3.16	.88	13.88	....	13.00	*11.0*	1.43	1.43	*2.0*
19.01	68.3	.35	....	1.83	2.18	*2.1*	3.84	6.69	1.90	12.43	*10.0*	10.53	*8.0*	1.41	1.41	*1.5*
18.89	69.4	.35	....	1.84	2.19	*2.1*	5.84	3.97	1.51	11.32	*10.0*	9.81	*8.0*	2.00	2.00	*2.0*
17.54	71.0	....	....	2.88	2.88	*2.5*	3.50	1.55	.83	5.88	*5.0*	5.05	*4.0*	4.17	4.17	*4.0*
16.33	71.5	....	....	.42	.42	*.8*	8.10	1.84	.47	10.41	*10.0*	9.94	*9.0*	4.57	4.67	*5.0*
*17.42	72.2	....	....	1.83	1.83	*1.7*	.59	9.31	1.55	11.45	*9.0*	9.90	*7.0*	1.91	1.91	*2.0*
19.16	72.2	.32	....	1.90	2.22	*1.0*	6.14	3.68	1.86	11.68	*10.0*	9.82	*8.5*	2.01	2.01	*2.0*
14.93	74.1	....	....	....	....	....	8.32	3.75	.90	12.97	....	12.07	*11.0*	1.86	1.86	*2.0*
17.16	74.8	trace	....	1.20	1.20	*.8*	7.31	1.96	.68	9.95	*9.0*	9.27	*8.0*	3.92	3.92	*4.0*
†15.94	75.6	....	....	1.34	1.34	*1.0*	4.77	4.66	1.60	11.03	*9.0*	9.43	*8.0*	1.82	1.82	*2.0*
*19.81	76.7	....	....	2.34	2.34	*2.1*	5.65	4.79	1.34	11.78	*10.0*	10.44	*7.0*	1.90	1.90	*2.0*
†12.91	78.2	....	....	.97	.97	*.8*	5.39	2.06	3.31	10.76	....	7.45	*7.0*	.98	.98	*1.1*
15.67	78.7	....	....	1.16	1.16	*1.0*	4.94	4.83	1.31	11.08	*10.0*	9.77	*8.0*	1.82	1.82	*2.0*
17.85	79.3	.38	....	1.51	1.89	*1.7*	3.49	5.22	3.76	12.47	*10.0*	8.71	*8.0*	2.26	2.26	*2.0*
18.84	80.4	....	.34	2.99	3.33	*3.3*	1.55	4.16	1.76	7.47	*5.0*	5.71	*3.0*	.80	2.96	*3.0*
‡15.36	82.3	....	....	1.15	1.15	*1.0*	4.40	4.88	1.80	11.08	*8.0*	9.28	*7.0*	1.89	1.89	*2.0*
17.96	83.7	....	....	1.46	1.46	*1.2*	7.31	2.85	3.22	13.38	....	10.16	*10.0*	1.88	1.88	*1.5*

* See pp. 125. † See pp. 124. ‡ See pp. 126.

Nitrogenous Superphosphates and Guanos, Sampled by the Station.

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6324	Fish and Potash.	Berkshire Mills, Bridgeport.	C. H. Youngs & Son, Yalesville.	**30.00**
			T. H. Eldridge, Norwich.	32.00
			H. R. Hoisington, Jr., Coventry.	32.00
			F. S. Bidwell, Windsor Locks.	34.00
6284	Nobsque Guano.	Pacific Guano Co., Boston, Mass.	Saxton & Strong, Bristol.	**30.00**
			John A. Paine, Danielson.	32.00
			J. O. Fox & Co., Putnam.	32.00
			Carlos Bradley, Ellington.	27.00
6373	Cleveland Fertilizer.	Cleveland Dryer Co., Boston, Mass.	D. F. Southwick, Putnam.	**30.00**
6378	Economical Bone Fertilizer.	Wilkinson & Co., N. Y. City.	W. W. Peck, Woodbridge.	**32.00**
6402	Four Fold Fertilizer.	Walker, Stratman & Co., Pittsburgh.	White & Juno, Rockville.	**31.00**
6086	Buffalo Guano.	Milsom Rendering and Fertilizer Co., Buffalo, N. Y.	W. K. Ackley, East Hartford.	**33.00**
6082	Erie King.	Milsom Rendering and Fertilizer Co., Buffalo, N. Y.	W. K. Ackley, East Hartford.	**32.00**

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
$16.26	84.5	.80	.22	1.73	2.75	*2.5*	1.28	3.04	2.65	6.97	*6.0*	4.32	----	3.43	3.43	*3.0*
15.87	89.0	----	----	1.31	1.31	*1.2*	4.42	4.88	1.54	10 84	*10.0*	9.30	*9.0*	2.04	2.04	*2.0*
15.74	90.6	----	----	1.11	1.11	*1.0*	5.28	4.61	1.11	11.00	*9.0*	9.89	*8.0*	1.97	1.97	*2.0*
16.51	93.8	----	----	1.50	1.50	*1.2*	4.88	3.00	2.21	10.09	----	7.88	*7.0*	3.40	3.40	*3.0*
15.95	94.4	----	----	1.29	1.29	*.8*	6.03	4.28	1.00	11.31	----	10.31	*8.0*	1.14	1.14	*1.0*
16.51	99.9	----	----	1.41	1.41	*.8*	6.74	1.29	1.77	9.80	*9.0*	8.03	*8.0*	1.18	3.27	*4.0*
14.30	123.8	----	----	1.05	1.05	*.8*	6.75	1.35	1.55	9.65	*9.0*	8.10	*7.0*	.71	2.03	*2.0*

Valuation.

The valuation has been computed in all cases in the usual manner as explained on page 98.

Percentage difference given in the table shows the percentage excess of the cost price over the average retail cost of the nitrogen, phosphoric acid and potash contained in the fertilizer.

This information enables the purchaser to estimate the comparative value of different brands and to determine whether it is better economy to buy the commercial mixed fertilizers of which so many are now offered for sale, or to purchase and mix for himself the raw materials. This subject is further discussed on pp. 169 to 176 of this report.

Which plan is preferable can only be determined by each individual farmer, who should know best what his soil and crops need and what his facilities for purchase and payment are.

In case a fertilizer has sold at two or more different prices, the *manufacturer's price*, when known, has been used in calculating percentage difference.

Otherwise an *average, or nearly average price*, forms the basis of comparison between cost and valuation. The price thus employed is printed in heavy-faced type.

The average cost of the nitrogenous superphosphates is $31.56. The average valuation is $21.18, and the percentage difference 49.0.

Last year the corresponding figures were:

Average cost $32.32, average valuation $23.37, percentage difference 38.2.

These valuations, it must be remembered, are based on the assumption that the nitrogen, phosphoric acid and potash in each fertilizer are of good quality and readily available to farm crops. Chemical examination shows conclusively whether this is true in respect of potash and phosphoric acid, but gives little or no clue as to the availability of the organic nitrogen of mixed goods. This Station has been for some years engaged in a study of methods for determining approximately the relative availability of nitrogen, and on subsequent pages is given a report of the work done during the past year on this point.

Since various inferior or agriculturally worthless forms of nitrogen are in the market and are known to be used in compounding fertilizers, and cannot as yet be detected with certainty by analysis, the only security of purchasers of mixed fertilizers is in dealing with firms which have the highest reputation and are able to satisfy their customers that they use the best raw materials, and in avoiding "cheap" goods offered by irresponsible parties.

2. *Sampled by the Manufacturer.*

In the following table, pages 140, 141, are twelve analyses made on samples deposited with the Director of this Station by manufacturers in compliance with the requirements of the Fertilizer Law.

The brands named were not found in the Connecticut market by our sampling agents.

3. *Sampled by Consumers.*

In the table just referred to are four analyses made on samples of this kind. The Station is not responsible for the accuracy of the sampling, though in each case it holds the written statement of the sampler that the Station's directions for sampling were strictly followed.

NITROGENOUS SUPERPHOSPHATES SAMPLED BY MANUFACTURERS

Station No.	Name or Brand.	Manufacturer.	Dealer or Purchaser.
6420	Eclipse Phosphate.	Bradley Fertilizer Co., Boston, Mass.	....
6421	Bone and Potash, Circle Brand.	Bradley Fertilizer Co., Boston, Mass.	....
6424	Bone and Potash, Anchor Brand.	Bradley Fertilizer Co., Boston, Mass.	....
6425	Practical Ammoniated Superphosphate.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.	....
6476	General Crop Phosphate.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.	....
6418	Fertilizer for Gardens and Lawns.	L. B. Darling Fertilizer Co., Pawtucket, R. I.	....
6452	Lowell Animal Fertilizer.	Lowell Fertilizer Co., Lowell, Mass.	....
6419	Bone, Fish and Potash.	Luce Bros., Niantic.	....
6481	Cereal Fertilizer.	Frederick Ludlam, N. Y. City.	....
6482	Cecrops Fertilizer, Dragon's Tooth Brand.	Frederick Ludlam, N. Y. City.	....
6422	Buffalo Fertilizer, Long Island Brand.	Milsom Rendering & Fertilizer Co., Buffalo, N. Y.	....
6416	Niagara Triumph.	Niagara Fertilizer Works, Buffalo, N. Y.	....
6487	Bowker's Fairfield Fertilizer.	Bowker Fertilizer Co., Boston, Mass.	Simeon Pease, Greenfield Hill.
6040	"All Soluble."		Monroe, Lalor & Co., Oswego, N. Y.
6357	Conn. Valley Orchard Co's Fertilizer.	Quinnipiac Co., Boston, Mass.	Conn. Valley Orchard Co.
6449	"Fertilizer."	Williams & Clark Fertilizer Co., N. Y. City.	E. S. Miner, Burrville.

AND PRIVATE INDIVIDUALS. ANALYSES.

Valuation per Ton.	Nitrogen.					Phosphoric Acid.							Potash.		
				Total Nitrogen.					Total.		Available.		Found.		
	Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Found.	Guaranteed.	Soluble.	Reverted.	Insoluble.	Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	Guaranteed.
$20.24	.32	----	1.80	2.12	*1.0*	5.30	6.27	1.66	13.23	*12.0*	11.57	10.0	1.76	1.76	*1.5*
23.38	----	----	1.95	1.95	*1.8*	2.32	10.95	4.42	17.69	*10.0*	13.27	6.0	----	2.65	*2.0*
21.10	----	----	3.72	3.72	*3.3*	3.07	3.61	1.12	7.80	*5.0*	6.68	*3.0*	3.38	3.58	*3.0*
15.62	----	----	1.16	1.16	*.8*	5.62	3.16	4.20	12.98	----	8.78	*8.0*	1.50	1.50	*1.1*
13.14	----	----	1.16	1.16	*.8*	2.83	4.83	2.31	9.97	----	7.66	*7.0*	1.14	1.14	*1.1*
28.32	.75	----	2.93	3.68	*3.3*	3.60	8.44	1.20	13.24	*10.0*	12.04	----	5.79	5.79	*5.0*
29.36	.60	----	3.00	3.60	----	3.30	11.49	1.87	16.66	----	14.79	----	3.86	3.86	----
20.43	----	.86	2.44	3.30	*3.3*	2.35	3.52	.22	6.09	*4.0*	5.87	----	.24	4.84	*4.0*
15.40	.18	----	.77	.95	----	7.05	3.55	1.80	12.40	----	10.60	----	.80	.80	----
24.39	1.35	----	1.93	3.28	----	3.81	3.77	2.35	9.93	----	7.58	----	7.15	7.15	----
20.05	----	----	2.97	2.97	*2.5*	5.97	3.30	.43	9.70	*10.0*	9.27	*8.0*	1.88	1.88	*1.0*
20.35	----	----	2.99	2.99	*2.5*	6.61	2.12	.84	9.57	----	8.73	*8.0*	2.50	2.50	*2.2*
25.89	1.72	----	1.76	3.48	----	5.68	2.87	1.44	9.99	----	8.55	----	7.37	7.37	----
24.89	----	.45	2.65	3.10	----	2.60	6.80	1.63	11.03	----	9.40	----	----	5.81	----
25.58	1.51	----	1.98	3.49	----	6.62	4.42	1.46	12.50	----	11.04	----	4.09	4.09	----
21.81	.78	----	2.08	2.86	----	2.69	4.50	1.74	8.93	----	7.19	----	5.12	6.23	----

SPECIAL MANURES.

Here are included such mixed fertilizers, chiefly nitrogenous superphosphates, as are claimed by their manufacturers to be specially adapted to the needs of particular crops.

1. *Samples drawn by Station Agents.*

In the tables on pages 144 to 153, are tabulated the analyses of eighty-three brands made on samples drawn by the Station agents.

GUARANTEES.

Of the eighty-three brands of special manures here tabulated twenty-two are below the manufacturers' guarantee in respect of one ingredient and five in respect of two ingredients, so that nearly one-third of the whole number do not fulfill the manufacturers' claims.

In eighteen cases the deficiency was in potash.

The manufacturers of the following brands expressed disappointment at the low per cent. of potash reported by the Station, and asked for a re-test.

This was made in each case, and in every instance the per cent. of potash found was essentially the same as that found in the first test.

6281. Potato Fertilizer, made by the Bradley Fertilizer Co., Boston. Potash found, 2.95, guaranteed 3.2.

6312. Potato Fertilizer, made by the Cumberland Bone Phosphate Co., Boston. Potash found 2.92 per cent., guaranteed 3.0.

6280. Tobacco Grower, made by the L. B. Darling Fertilizer Co., Pawtucket, R. I. Potash 8.84 per cent., guaranteed 10.8. The manufacturer states that the per cent. of chlorine, 1.47, is also largely in excess of what was expected, as high grade sulphate was used as a source of potash. It was not possible to get other samples of this brand to make a re-test.

6407. Soluble Tobacco Manure, made by the Rogers & Hubbard Co., Middletown. Potash found, 9.40 per cent., guaranteed 10.0. The nitrogen, however, is fully one per cent. above the minimum guarantee.

6163. Tobacco Fertilizer, made by Rogers Manufacturing Co., Rockfall. The analysis showed 4.66 per cent. nitrogen, 6.93 phosphoric acid and 13.47 per cent. potash.

This differed so widely from the guaranteed composition, nitrogen 5.0, phosphoric acid 8.0 and potash 11.0, that the manufacturer asked that another sample be drawn and analyzed.

A Station agent therefore visited the factory and drew sample No. **6335,** page 148, which was found to contain : nitrogen 4.26, phosphoric acid 9.36, and potash 10.31 per cent.

6358. Standard Potato and Tobacco Fertilizer, made by the Standard Fertilizer Co., Boston. Potash found, 2.61 per cent., guaranteed 3.0 per cent.

6477. Potato Phosphate, made by the National Fertilizer Co., Bridgeport. Potash found, 7.28 per cent., guaranteed 8.00.

COST, VALUATION AND PERCENTAGE DIFFERENCE.

The average cost of eighty-three Special Manures was $36.19 per ton. The average valuation was $25.64. The difference, $10.55, is equivalent to a "percentage difference" of 41.1.

Last year the corresponding figures were, average cost $37.33, average valuation 27.94, percentage difference 33.6.

2. Special Manures Sampled by Manufacturers.

The following eight analyses were made on samples deposited by the manufacturers at the Station, as required by law.

The sampling agent did not find these brands on sale in the places visited by him.

6423. Special Connecticut Tobacco Manure, made by the Crocker Fertilizer and Chemical Co., Buffalo, N. Y.

6427. Special Potato Fertilizer, made by the Lister Agricultural Chemical Works, Newark, N. J.

6429. Potato Phosphate. **6430.** Tobacco Manure. **6451.** Lawn Dressing, and **6453.** Vegetable and Vine Fertilizer, all made by the Lowell Fertilizer Co., Lowell, Mass.

6426. Potato, Hop and Tobacco Phosphate, Long Island Brand, made by the Milsom Rendering Co., Buffalo, N. Y.

6417. Niagara Wheat and Corn Producer, made by the Niagara Fertilizer Co., Buffalo, N. Y.

ANALYSES OF SPECIAL MANURES.

	6423	**6427**	**6429**	**6430**	**6451**	**6453**	**6426**	**6417**
itrogen as Nitrates	----	----	1.04	3.60	3.94	.22	----	----
" " Ammonia	----	.26	----	----	----	----	----	----
" Organic	5.50	1.67	2.57	1.84	.31	2.82	2.74	1.78
otal Nitrogen	5.50	1.93	3.61	5.44	4.25	3.04	2.74	1.78
oluble Phosphoric Acid	5.75	4.48	2.94	4.61	7.23	5.63	6.46	5.86
everted " "	1.25	3.91	10.74	5.48	.81	7.97	2.58	2.92
soluble " "	.20	2.59	1.34	.44	.07	.20	.36	.84
otal " "	7.20	10.98	15.02	10.53	8.11	13.80	9.40	9.62
otash as Muriate	.86	2.83	6.39	.29	7.90	7.17	6.97	2.45
otash as Sulphate	11.08	----	----	7.26	----	----	----	----
aluation per ton	$34.91	17.89	30.27	33.12	27.41	29.18	23.77	16.90

SPECIAL MANURES, SAMPLED BY THE STATION.

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6346	Potato Fertilizer.	Chas. E. Lyman, Middlefield.	Manufacturer.	**$25.00**
6347	Corn Fertilizer.	Chas. E. Lyman, Middlefield.	Manufacturer.	**20.00**
6383	Manure for Seeding Down.	Mapes' F. & P. G. Co., N. Y. City.	Mapes' Branch, Hartford.	**38.00**
6123	The Rogers & Hubbard Co's Fruit Fertilizer.	Rogers & Hubbard Co., Middletown.	Manufacturer.	**41.00**
6287	Potato and Root Crop Manure.	L. B. Darling Fertilizer Co., Pawtucket, R. I.	J. H. Lynch, Ellington.	**34.00**
			F. S. Bidwell, Windsor Locks	35.00
6162	Corn Fertilizer.	Rogers Mfg. Co., Rockfall.	Manufacturer.	**46.00**
6407	The Rogers & Hubbard Co's Soluble Tobacco Manure.	Rogers & Hubbard Co., Middletown.	H. W. Andrews, Wallingford.	**42.00**
6126	The Rogers & Hubbard Co's Fairchild's Formula for Corn and General Crops.	Rogers & Hubbard Co., Middletown.	Manufacturer.	**46.00**
6281	Potato Fertilizer.	Bradley Fertilizer Co., Boston, Mass.	D. L. Clark, Milford.	**30.00**
			John R. Babcock, Mystic.	33.00
6199	Essex Complete Manure for Corn, Grain and Grass.	Russia Cement Co., Gloucester, Mass.	J. A. Lewis, Willimantic.	**38.00**
			E. N. Pierce & Co., Plainville.	40.00
6161	High Grade Fertilizer for Grass and Grain.	Rogers Mfg. Co., Rockfall.	Manufacturer.	**38.00**
6323	Potato and Tobacco Fertilizer.	Clark's Cove Fertilizer Co., Boston, Mass.	W. H. Phillips, Chaplain.	**33.00**
			J. M. Burke, So. Manchester.	36.00
6127	The Rogers & Hubbard Co's Soluble Potato Manure.	Rogers & Hubbard Co., Middletown.	Manufacturer.	**38.00**
6125	The Rogers & Hubbard Co's Fertilizer for Oats and Top Dressing.	Rogers & Hubbard Co., Middletown.	Manufacturer.	**50.00**
6198	Essex Complete Manure for Potatoes, Roots and Vegetables.	Russia Cement Co., Gloucester, Mass,	J. A. Lewis, Willimantic.	**38.00**
			John O. Peckham, Greenville.	38.00
			E. N. Pierce & Co., Plainville.	40.00
6477	Potato Phosphate.	National Fertilizer Co., Bridgeport.	G. A. & H. B. Williams, Silver Lane.	**34.00**
6164	High Grade Fertilizer for Oats and Top Dressing.	Rogers Mfg. Co., Rockfall.	Manufacturer.	**42.00**
6124	The Rogers & Hubbard Co's Grass and Grain Fertilizer.	Rogers & Hubbard Co., Middletown.	Manufacturer.	**37.50**
6285	Potato, Onion and Tobacco Manure.	Wilcox Fertilizer Works, Mystic.	Browning & Gallup, New London.	**31.00**
			John Thompson, Ellington.	34.00
			C. M. Smith, East Hartford.	37.00
6280	Tobacco Grower.	L. B. Darling Fertilizer Co., Pawtucket, R. I.	J. H. Lynch, Ellington.	38.00
			F. S. Bidwell, Windsor Locks	40.00

ANALYSES.

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
25.64	*2.5	----	----	3.38	3.38	*2.5*	3.34	4.47	.84	8.65	*10.0*	7.81	----	8.56	8.56	*10.0*
21.93	*8.8	----	----	----	----	----	9.00	2.75	.31	12.06	*11.0*	11.75	----	10.18	10.18	*10.0*
34.35	10.6	.82	----	2.03	2.85	*2.5*	----	----	----	18.42	*18.0*	----	----	10.83	10.83	*10.0*
36.29	12.9	.15	----	2.91	3.06	*2.5*	----	----	----	19.12	*17.5*	-----	----	12.49	12.49	*12.5*
29.38	15.7	----	.35	3.31	3.66	*2.9*	3.04	6.58	2.48	12.10	*10.0*	9.62	*6.0*	5.93	7.75	*7.0*
38.91	18.2	4.60	----	1.66	6.26	*5.4*	----	----	----	12.22	*12.0*	-----	----	12.68	12.68	*12.5*
35.44	18.5	1.75	.10	3.96	5.81	*4.9*	1.41	8.10	.67	10.18	*10.0*	9.51	----	-----	9.40	*10.0*
38.24	20.3	4.05	----	2.07	6.12	*5.5*	----	----	----	12.00	*12.0*	-----	----	12.54	12.54	*13.0*
24.79	21.0	.18	----	2.14	2.32	*2.1*	4.90	5.32	1.43	11.65	----	10.22	*9.0*	2.95	2.95	*3.2*
1.37	21.1	.74	----	3.39	4.13	*3.7*	5.18	4.31	1.13	10.62	*10.0*	9.49	*7.5*	10.47	10.47	*9.5*
1.05	22.4	trace	----	3.16	3.16	*3.0*	----	----	----	15.79	*17.0*	-----	----	13.73	13.73	*15 0*
6.64	23.9	.23	----	2.18	2.41	*2.1*	5.60	4.84	1.37	11.81	*9.0*	10.44	*8.0*	3.09	3.09	*3.0*
0.56	24.3	1.49	.07	3.32	4.88	*5.0*	1.71	6.75	2.62	11.08	*10.0*	8.46	*7.0*	1.88	6.49	*5.0*
9.87	25.4	7.48	----	1.40	8.88	*9.0*	----	----	----	9.13	*8.0*	-----	----	8.77	8.77	*8.5*
0.13	26.1	.60	----	3.47	4.07	*3.7*	4.80	3.90	.93	9.63	*9.0*	8.70	*7.0*	1.20	9.36	*8.5*
6.96	26.1	----	----	2.43	2.43	*2.1*	.59	6.58	1.36	8.53	----	7.17	*8.0*	7.28	7.28	*8.0*
.23	26.4	4.10	----	2.40	6.50	*5.5*	2.72	5.14	.74	8.60	*9.0*	7.86	----	7.79	7.79	*7.5*
.66	26.4	----	----	2.84	2.84	*2.5*	----	----	----	18.83	*16.5*	-----	----	11.55	11.55	*12.5*
.81	26.8	.83	----	3.01	3.84	*3.3*	4.66	4.26	.67	9.59	*8.0*	8.92	*7.0*	.56	6.54	*6.0*
.47	27.1	----	1.75	3.30	5.05	*4.9*	1.63	5.75	1.88	9.26	*10.0*	7.38	----	1.47	8.84	*10.8*

‖ See p. 142.

* Valuation exceeds cost.

‡ See p. 143.

SPECIAL MANURES, SAMPLED BY THE STATION.—*Continued.*

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6388	Quinnipiac Havana Seed Leaf Tobacco Fertilizer.	Quinnipiac Co., Boston, Mass.	Olds & Whipple, Hartford.	**$45.00**
6253	Complete Onion Manure.	H. J. Baker & Bro., N. Y. City.	C. O. Jelliff & Co., Southport.	**38.00**
6351	New England Tobacco Grower.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.	Carlos E. Kibbe, Wapping.	**31.00**
6329	Stockbridge Tobacco Manure.	Bowker Fertilizer Co., Boston, Mass.	H. K. Brainard, Thompsonville.	**48.00**
			L. H. Grant, Broad Brook.	50.00
6387	Potato, Hop and Onion Fertilizer.	Preston Fertilizer Co., Greenpoint, L. I.	E. A. Buck & Co., Willimantic.	**32.00**
6328	Complete Tobacco Manure.	H. J. Baker & Bro., N. Y. City.	L. J. Grant, Wapping.	**40.00**
			W. F. Andross, East Hartford.	40.00
6160	High Grade Soluble Potato Manure.	Rogers Mfg. Co., Rockfall.	Manufacturer.	**38.00**
6445	Complete Manure for Potatoes and Vegetables.	Lowell Fertilizer Co., Lowell, Mass.	J. P. Barstow & Co., Norwich.	**35.00**
6400	Fine Wrapper Tobacco Grower.	Williams & Clark Fertilizer Co., N. Y. City.	G. H. Clark, Granby.	**48.00**
6235	High Grade Special.	Williams & Clark Fertilizer Co., N. Y. City.	S. A. Flight, New Haven.	35.00
			Edward L. Strong, Colchester.	36.00
			F. B. Austin, Silver Mine.	38.00
			F. C. Gould, Silver Lane.	39.00
			Greenwoods Co., New Hartford.	38.00
				37.00
6382	Tobacco Manure, Wrapper Brand.	Mapes' F. & P. G. Co., N. Y. City.	Hartford Branch, Hartford.	**46.00**
6163	Tobacco Fertilizer.	Rogers Mfg. Co., Rockfall.	Manufacturer.	**45.00**
6233	Stockbridge Top-Dressing.	Bowker Fertilizer Co., Boston, Mass.	W. O. Goodsell, Bristol.	38.00
			Balch & Platt, Norfolk.	**40.00**
6258	High Grade Tobacco Manure.	Bradley Fertilizer Co., Boston, Mass.	Loomis Bros., Granby.	**46.00**
			C. F. Tallard & Son, Broad Brook.	46.00
6250	Grass and Grain Spring Top-Dressing.	Mapes' F. & P. G. Co., N. Y. City.	Mapes' Branch, Hartford.	**38.00**
			Edward L. Strong, Colchester.	39.00
6206	Special Potato Manure.	Crocker Fertilizer & Chemical Co., Buffalo., N. Y.	H. C. Aborn & Son, Ellington.	**36.00**
			Orlando Jones, Highwood.	40.00
			F. B. Newton, Plainville.	42.00
6318	Potato Manure.	C. D. Parks, Danbury.	Manufacturer.	**35.00**
6210	Complete Potato Manure.	H. J. Baker & Bro., N. Y. City.	C. O. Jelliff & Co., Southport.	38.00
			H. T. Miner, Vernon.	**40.00**
			Saxton & Strong, Bristol.	41.00
			Webster & Atwater, New Britain.	42.50

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
$35.29	27.5	----	3.10	3.07	6.17	*5.7*	3.97	2.21	.84	7.02	*6.0*	6.18	*5.0*	.92	10.56	*10.0*
29.59	28.4	.43	2.20	2.42	5.05	*4.9*	4.02	1.36	.42	5.80	*5.5*	5.38	*4.5*	7:25	9.82	*9.0*
23.86	29.9	----	----	3.38	3.38	*3.3*	5.22	1.53	2.90	9.65	----	6.75	*6.0*	.81	6.05	*5.4*
36.58	31.2	2.90	----	2.91	5.81	*5.8*	1.09	5.74	4.50	11.33	----	6.83	*4.0*	.56	10.12	*10.0*
24.37	31.3	.11	----	2.82	2.93	*2.5*	1.92	8.09	.63	10.64	*9.0*	10.01	----	6.35	6.35	*5.0*
30.12	32.8	----	2.64	1.76	4.40	*4.5*	4.27	.99	.37	5.63	----	5.26	*4.0*	.85	11.51	*10.0*
28.58	32.9	.69	----	3.26	3.95	*3.5*	2.19	6.27	1.44	9.90	*9.0*	8.46	----	.73	8.40	*8.8*
26.10	34.1	.42	----	2.02	2.44	*2.5*	10.12	4.49	.31	14.92	*8.0*	14.61	*7.0*	3.97	3.97	*4.0*
35.56	34.9	----	2.80	3.15	5.95	*5.8*	2.00	4.83	.95	7.78	*6.0*	6.83	*5.0*	.48	10.98	*10.0*
27.22	35.9	1.21	.25	2.28	3.74	*3.7*	5.26	4.39	1.10	10.75	*8.0*	9.65	*7.0*	6.89	6.89	*7.0*
33.80	36.0	1.78	2.28	2.14	6.20	*6.2*	.35	4.40	.69	5.44	*4.5*	4.75	----	.77	11.17	*10.5*
*33.04	36.2	1.25	----	3.41	4.66	*4.9*	1.30	4.93	.70	6.93	*8.0*	6.23	----	----	13.47	*11.0*
29.07	37.6	2.91	----	2.19	5.10	*4.9*	4.54	3.00	2.39	9.93	*6.0*	7.54	----	6.81	6.81	*6.0*
33.40	37.7	----	3.12	2.65	5.77	*5.8*	1.76	3.70	1.32	6.78	*4.0*	5.46	*7.0*	.76	10.53	*10.8*
27.42	38.6	1.04	.75	2.86	4.65	*4.1*	3.15	4.17	.60	7.92	*7.0*	7.32	*5.0*	7.19	7.19	*5.0*
25.93	38.8	----	----	4.12	4.12	*3.7*	5·87	2.36	.98	9.21	----	8.23	*8.0*	5.75	5.75	*5 5*
24.92	40.4	.12	----	2.88	3.00	*2.9*	.59	8.10	1.98	10.67	*8.0*	8.69	----	6.90	6.90	*7.0*
28.49	40.4	.47	1.30	2.09	3.86	*3.3*	5.42	1.52	.57	7.51	*6.5*	6.94	*5.0*	5.33	10.29	*10.0*

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* See page 142.

SPECIAL MANURES, SAMPLED BY THE STATION.—*Continued.*

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6232	Corn Manure.	Mapes' F. & P. G. Co., New York City.	Mapes' Branch, Hartford.	$35.0
			Willoughby Bros., Tariffville.	37.0
6259	Comp ete Manure for Corn and Grain.	Bradley Fertilizer Co., Boston, Mass.	Strong & Tanner, Winsted.	38 0
			M. Beach & Son, New Milford.	40.0
6225	Potato Manure.	Mapes' F. & P. G. Co., New York City.	Mapes Branch, Hartford.	40.0
			A. Martin, Lakeville.	42.0
6173	High Grade Potato Manure.	Packers' Union Fertilizer Co., New York City.	Nathan S. Bushnell, Taftville.	32.0
			W. H. Terry, Willimantic.	32.0
			Thomas McClimon, Greenville.	33.0
6335	High Grade Soluble Tobacco Manure.	Rogers Manufacturing Co., Rockfall.	Manufacturer.	45.0
6181	High Grade Potato Fertilizer.	E. Frank Coe Co., New York City.	I. W. Dennison & Co., Mystic.	33.0
			J. A. Isham, Columbia.	33.0
			Walkley & Damery, Wethersfield.	37.0
6315	Tobacco Starter.	Mapes' F. & P. G. Co., New York City.	F. S. Bidwell, Windsor Locks.	36.0
6411	Tobacco Grower.	Bowker Fertilizer Co., Boston, Mass.	E. F. Miller, Ellington.	34.0
6286	Corn Fertilizer.	M. E. Wheeler & Co., Rutland, Vt.	John Bransfield, Portland.	30.
			Dwight Gallup, Old Mystic.	30.
			D. P. Bullis, Wallingford.	30.
			N. E. Lord, Hebron.	----
			E. K. Chamberlain, East Woodstock,	32.
6313	Fruit and Vine Manure.	Mapes' F. & P. G. Co., New York City.	Mapes' Branch, Hartford, Ct.	38.
6372	Potato Phosphate.	Cleveland Dryer Co., Boston, Mass.	D. F. Southwick, Putnam.	30.
6209	Complete Manure for Potatoes and Vegetables.	Bradley Fertilizer Co., Boston, Mass.	J. B. Alexander, New Britain.	39.
			E. N. Pierce & Co., Plainville.	42.
6364	Quinnipiac Corn Manure.	Quinnipiac Co., Boston, Mass.	W. L. L. Spencer, Lebanon.	28.
			C. R. Hall, Coventry.	32.
6370	Potato Manure.	Bowker Fertilizer Co., Boston, Mass.	Balsh & Platt, Norfolk.	33.
			S. T. Welden, Simsbury.	33.
6179	Stockbridge Corn and Grain Manure.	Bowker Fertilizer Co., Boston, Mass.	City Coal and Wood Co., New Britain.	38.
			J. A. Lewis, Willimantic.	40.
			C. T. Leonard, Norwalk.	40.
6254	Complete Corn Manure.	H. J. Baker & Bro., New York City.	H. T. Miner, Vernon.	40.
6204	Animal Corn Fertilizer.	Packers' Union Fertilizer Co., New York City.	B. E. Eddy, E. Woodstock.	30.
			Thomas McClimon, Greenville.	30.
6401	Complete Manure for Top Dressing Grass and Grain.	Bradley Fertilizer Co., Boston, Mass.	Billings & Hallock, Meriden.	35.

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
$24.88	40.7	.58	.28	1.76	2.62	*2.5*	6.97	3.62	.39	10.98	*10.0*	10.59	*8.0*	6.77	6.77	*6.0*
26.85	41.5	1.16	----	2.09	3.25	*3.3*	5.04	7.21	1.66	13.91	*13.0*	12.25	*12.0*	4.96	4.96	*3.0*
28.24	41.6	1.96	.45	1.26	3.67	*3.7*	5.26	4.86	.52	10.64	*8.0*	10.12	----	.67	7.28	*6.0*
22.50	42.2	----	----	2.30	2.30	*2.1*	7.07	2.14	.82	10.03	*9.0*	9.21	*8.0*	6.46	6.46	*6.0*
*31.48	42.9	1.54	.15	2.57	4.26	*5.0*	3.41	5.50	.45	9.36	*8.0*	8.91	----	.69	10.31	*10.0*
23.12	42.7	----	.48	1.95	2.43	*2.5*	7.04	2.21	1.91	11.16	*9.0*	9.25	*9.0*	.33	5.54	*6.0*
25.17	43.0	1.40	.45	1.15	3.00	*2.5*	6.42	6.08	.86	13.36	*12.0*	12.50	*8.0*	.54	3.39	*2.5*
23.74	43.3	.75	----	1.91	2.66	*2.5*	8.22	2.65	.96	11.83	*9.0*	10.87	*7.0*	.36	4.33	*4.0*
20.85	43.9	.06	----	2.92	2.98	*1.7*	7.01	2.38	.77	10.16	*9.0*	9.39	*8.0*	2.34	2.34	*2.0*
26.32	44.4	.38	.18	1.49	2.05	*1.7*	4.58	2.82	.53	7.93	*7.0*	7.40	*5.0*	.91	12.60	*10.0*
20.72	44.8	.35	----	2.22	2.57	*2.1*	4.64	5.32	1.21	11.17	*10.0*	9.96	*8.0*	2.94	2.94	*3.0*
26.80	45.5	1.52		2.38	3.90	*3.7*	5.01	4.41	1.21	10.63	*9.0*	9.42	*8.0*	6.27	6.27	*6.0*
19.05	46.9	.32	----	1.82	2.14	*2.1*	4.49	5.87	2.10	12.46	*10.0*	10.36	*9.0*	1.60	1.60	*1.5*
22.42	47.2	.59	----	2.00	2.59	*2.5*	6.78	3.31	1.19	11.28	*10.0*	10.09	*8.0*	4.42	4.42	*4.0*
27.08	47.7	1.78	----	1.88	3.66	*3.3*	8.27	2.88	1.21	12.36	*10.0*	11.15	*8.0*	5.05	5.05	*4.0*
26.64	50.2	.17	2.41	1.55	4.13	*4.9*	6.05	1.51	.36	7.92	----	7.56	*6.2*	7.00	7.00	*7.0*
19.95	50.4	trace	----	2.74	2.74	*2.5*	7.01	2.13	1.00	10.14	*9.0*	9.14	*8.0*	2.27	2.27	*2.0*
22.72	54.0	5.00	----	----	5.00	*4.9*	1.95	3.43	1.22	6.60	*6.0*	5.38	*5.0*	.98	2.75	*2.5*

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* See page 143.

SPECIAL MANURES, SAMPLED BY THE STATION.—*Continued.*

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6283	Potato Manure.	M. E. Wheeler & Co., Rutland, Vt.	N. E. Lord, Hebron.	------
			E. K. Chamberlain, East Woodstock.	$34.00
			John Bransfield, Portland.	**35.00**
			E. Murray, Newtown.	36.00
6278	Vegetable, Vine and Tobacco.	Great Eastern Fertilizer Co., Rutland, Vt.	R. D. Wilson, Winsted.	33.00
			F. V. Cantrell, Darien.	36.00
			W. L. Baxter, New Canaan.	36.00
				35.00
6176	Stockbridge Special for Potatoes and Vegetables.	Bowker Fertilizer Co., Boston, Mass.	E. B. Clark & Sons, Milford.	36,00
			J. A. Lewis, Willimantic.	38.00
			P. L. Lathrop, Coventry.	**40.00**
			Browning & Gallup, New London.	40.00
6413	Fruit Fertilizer.	M. E. Wheeler & Co., Rutland, Vt.	Dwight & Gallup, Old Mystic.	**29.00**
6397	Americus Potato and Tobacco Fertilizer.	Williams & Clark Fertilizer Co., N. Y. City.	W. B. Martin, Rockville.	**34.00**
6231	Potato Manure.	Quinnipiac Co., Boston, Mass.	C. H. Banks, Greenfield Hill.	32.00
			F. S. Bidwell, Windsor Locks	33.00
			L. A. Grannis, Fair Haven.	**34.00**
			A. J. Martin, Wallingford.	35.00
			Olds & Whipple, Hartford.	35.00
6083	Potato Special Fertilizer.	Milsom Rendering and Fertilizer Co., Buffalo, N. Y.	W. K. Ackley, East Hartford	**39.00**
6288	Special Potato Manure.	Pacific Guano Co., Boston, Mass.	Carlos Bradley, Ellington.	31.00
			S. A. Burnham, Andover.	34.00
			Geo. Webster, Rockville.	35.00
				33.00
6234	Americus Potato Phosphate.	Williams & Clark Fertilizer Co., N. Y. City.	S. A. Flight, New Haven.	32.00
			F. B. Austin, Silver Mine.	33.00
			John H. Avery, Lebanon.	**34.00**
			Edward L. Strong, Colchester.	34.00
			G. H. Clark, Granby.	35.00
			S. E. Brown, Collinsville.	35.00
			A. B. Garfield, East Canaan.	36.00
	Grain and Grass Fertilizer.	Great Eastern Fertilizer Co., Rutland, Vt.	W. L. Baxter, New Canaan.	**36.00**
			F. V. Cantrell, Darien.	36.00
6208	Potato, Hop and Tobacco Phosphate.	Crocker Fertilizer and Chemical Co., Buffalo, N. Y.	H. C. Aborn & Son, Ellington	34.00
			Orlando Jones, Highwood	**35.00**
			E. A. Davis & Son, Danielson	36.00
			F. B. Newton, Plainville.	38.00

ANALYSES—*Continued.*

		Nitrogen.					Phosphoric Acid.							Potash.		
Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Total Nitrogen.		Soluble.	Reverted.	Insoluble.	Total.		Available.		Found.		Guaranteed.
					Found.	Guaranteed.				Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	
$22.70	54.2	....	....	2.42	2.42	*2.1*	7.04	2.26	.84	10.14	*9.0*	9.30	*8.0*	6.20	6.20	*3.2*
22.61	54.8	....	....	2.28	2.28	*2.1*	7.09	2.27	.82	10.18	*9.0*	9.36	*8.0*	6.47	6.47	*6.0*
25.76	55.3	1.49	....	1.93	3.42	*3.3*	3.38	3.23	2.42	9.03	*8.0*	6.61	*5.0*	9.36	9.36	*10.0*
18.50	56.8	....	....	....	....	....	5.87	4.47	1.02	11.36	*12.0*	10.34	*10.0*	7.95	7.95	*8.0*
21.63	57.2	.35	....	2.17	2.52	*2.1*	4.69	6.00	1.51	12.20	*9.0*	10.69	*8.0*	3.15	3.15	*3.0*
21.21	60.3	.23	....	2.51	2.74	*2.5*	3.84	3.35	1.78	8.97	*7.0*	7.19	*6.0*	5.87	5.87	*5.0*
24.15	61.5	....	....	1.97	1.97	*1.7*	7.73	2.13	.78	10.64	*10.0*	9.86	*8.0*	.59	7.75	*8.0*
20.36	62.0	.63	.20	1.91	2.74	*2.5*	3.07	4.02	1.66	8.75	*7.0*	7.09	*5.0*	5.17	5.17	*5.0*
20.70	64.3	.38	.12	2.12	2.62	*2.5*	4.00	3.70	1.59	9.29	*7.0*	7.70	*6.0*	5.14	5.14	*5.0*
21.90	64.4	....	....	3.20	3.20	*2.9*	7.14	2.52	1.12	10.78	*9.0*	9.66	*8.0*	2.35	2.35	*2.0*
21.06	66.2	....	....	2.17	2.17	*2.1*	7.57	3.20	1.04	11.81	*10.0*	10.77	*10.0*	3.37	3.37	*3.2*

SPECIAL MANURES, SAMPLED BY THE STATION.—*Continued.*

Station No.	Name or Brand.	Manufacturer.	Dealer.	Dealer's Cash Price per Ton.
6182	Vegetable and Vine Fertilizer.	Read Fertilizer Co., N. Y. City.	L. D. Post, Andover.	**$34.00**
			J. A. Silliman, New Canaan.	35.00
6312	Cumberland Potato Fertilizer.	Cumberland Bone Phosphate Co., Boston, Mass.	Wm. Bartell, Ore Hill.	**34.00**
6227	Ammoniated Wheat and Corn Phosphate.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.	H. C. Aborn & Son, Ellington.	**33.00**
			C. H. Wheeler, East Canaan.	35.00
6310	Potato, Tobacco and Hop Fertilizer.	Niagara Fertilizer Works, Buffalo, N. Y.	Wm. Higgins, New London.	**32.00**
6399	Americus Corn Phosphate.	Williams & Clark Fertilizer Co., N. Y. City.	G. H. Clark, Granby.	**35.00**
6401	Potato Special.	Walker, Stratman & Co., Pittsburgh, Pa.	White & Juno, Rockville.	**38.00**
6177	Potato Manure.	Bradley Fertilizer Co., Boston, Mass.	Raymond Bros., South Norwalk.	34.00
			D. L. Clark, Milford.	**35.00**
			J. B. Alexander, New Britain.	36.00
6202	Oats and Clover Fertilizer.	Packers' Union Fertilizer Co., N. Y. City.	B. E. Eddy, East Woodstock.	**25.00**
6358	Standard Potato and Tobacco Fertilizer.	Standard Fertilizer Co., Boston, Mass.	Nathan S. Bushnell, Taftville.	33.00
			A. L. Kuren, Tolland.	**35.00**
6085	Potato, Hop and Tobacco Phosphate.	Milsom Rendering & Fertilizer Co., Buffalo, N. Y.	W. K. Ackley, East Hartford.	**39.00**
6178	Practical Potato Special.	Read Fertilizer Co., N. Y. City.	John R. Babcock, Mystic.	**30.00**
			Nathan S. Bushnell, Taftville.	30.00
6390	Grass Fertilizer.	Quinnipiac Co., Boston, Mass.	O. S. Olmstead, Melrose.	**34.00**
6084	Wheat, Oats and Barley Phosphate.	Milsom Rendering & Fertilizer Co., Buffalo, N. Y.	W. K. Ackley, East Hartford.	**33.00**
6317	Universal Grain Grower.	Crocker Fertilizer & Chemical Co., Buffalo, N. Y.	C. H. Wheeler, East Canaan.	**30.00**
6412	Grass and Oats.	M. E. Wheeler & Co., Rutland, Vermont.	C. K. Chamberlain, East Woodstock.	**28.00**
			E. E. Pitney, Ellington.	----
6309	Niagara Grain and Grass Grower.	Niagara Fertilizer Works, Buffalo, N. Y.	Wm. Higgins, New London.	**26.50**

ANALYSES.—*Continued.*

Valuation per Ton.	Percentage Diff. between Cost and Valuation.	Nitrogen.					Phosphoric Acid.							Potash.		
					Total Nitrogen.					Total.		Available.		Found.		
		Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Found.	Guaranteed.	Soluble.	Reverted.	Insoluble.	Found.	Guaranteed.	Found.	Guaranteed.	As Muriate.	Total.	Guaranteed.
$20.40	66.7	trace	----	1.81	1.81	*1.7*	5.61	1.44	.63	7.68	*7.0*	7.05	*6.0*	8.30	8.30	*8.0*
*20.35	67.1	.47	----	1.85	2.32	*2.1*	5.36	4.71	1.65	11.72	*11.0*	10.07	*9.0*	2.92	2.92	*3.0*
19.64	68.0	----	----	2.26	2.26	*2.1*	7.89	2.45	1.42	11.76	*10.0*	10.34	*10.0*	1.80	1.80	*1.6*
18.71	71.0	----	----	2.18	2.18	*1.7*	5.68	1.78	3.73	11.19	*9.0*	7.46	*8.0*	3.43	3.43	*2.7*
20.35	72.0	.35	----	2.07	2.42	*2.1*	5.55	5.54	1.23	12.32	*10.0*	11.09	*9.0*	1.62	1.62	*1.5*
22.01	72.6	----	----	1.74	1.74	*1.7*	8.27	3.18	.91	12.36	----	11.45	*9.0*	----	4.50	*5.0*
20.04	74.6	.69	----	2.03	2.72	*2.5*	3.12	3.81	1.41	8.34	*8.0*	6.93	*6.0*	5.22	5.22	*5.0*
14.21	75.9	----	----	----	----	----	6.32	4.87	1.54	12.73	----	11.19	*11.0*	1.97	1.97	*2.0*
†19.82	76.6	.46	----	1.88	2.34	*2.1*	4.43	5.40	1.76	11.59	*9.0*	9.83	*8.0*	2.61	2.61	*3.0*
22.03	77.0	----	----	2.58	2.58	*2.5*	7.11	1.47	.55	9.13	*9.0*	8.58	----	5.79	5.88	*6.0*
16.62	80.5	trace	----	1.05	1.05	*.8*	3.44	2.62	.48	5.54	*5.0*	6.06	*4.0*	7.88	7.88	*8.0*
18.61	82.7	3.64	----	----	3.64	*3.9*	2.21	3.43	1.18	6.82	*6.0*	5.64	*5.0*	.83	2.53	*2.0*
17.75	85.9	----	----	1.59	1.59	*1.2*	8.75	1.57	.59	10.91	*9.0*	10.32	*8.0*	.37	1.90	*2.0*
15.41	94.7	----	----	1.15	1.15	*.8*	5.41	1.58	3.32	10.31	----	6.99	*7·0*	3.70	3.70	*2.7*
14.32	95.5	----	----	----	----	----	5.95	5.46	.92	12.33	----	11.41	*11.0*	2.16	2.16	*2.0*
12.87	105.9	----	----	1.00	1.00	*.8*	5.12	1.97	3.78	10.87	*8.0*	7.09	*7.0*	1.07	1.07	*1.1*

* See page 142.

† See page 143.

Home Mixtures.

Many farmers buy fertilizer chemicals and make their own mixtures on the farm instead of buying ready-mixed goods.

In some cases before payment is made, the chemicals themselves are sent to the Station for analysis to learn whether they fully meet the seller's guarantee.

The mixtures themselves are also sometimes sent for analysis.

Eleven analyses of these home mixtures are given in the table on page 155, together with the formulas used.

In most cases the analysis of the mixture agrees well with its "calculated composition," which is reckoned from the weights and the average composition of the fertilizer chemicals used.

The schedule of trade values by which the valuations are calculated is the same as is used for factory-mixed goods, stated on page 98. The cost per ton, given in the table, does not in any case include cost of mixing, which may amount to one or two dollars per ton, but it covers the regular cash ton prices of the chemicals, excluding car-lot quotations or special discounts.

The average cost of eight samples of home mixtures is $27.66, or adding two dollars per ton for mixing, $29.66. The average valuation of the same is $26.05 and the percentage difference between cost and valuation is 13.9.

MISCELLANEOUS FERTILIZERS AND MANURES.

Cotton Hull Ashes.

In the table on page 157 are tabulated thirty-one analyses of this material, most of them from stock bought for fertilizing tobacco lands.

These analyses show the usual wide range of composition. Thus, the potash, *soluble in water*, which is the ingredient for which the ashes are specially bought, ranges from 15.40 (excluding No. **6169**) to 30.64 per cent., and the phosphoric acid from 5.96 to 11.68 per cent.

The *averages* of these two ingredients have been, respectively, 23.1 and 9.7 per cent.

Allowing 5½, 5 and 2 cents per pound, for the water-soluble, citrate-soluble and insoluble phosphoric acid, respectively, potash soluble in water has cost from 3.8 cents to 10.9 cents per pound and on the average 6.6 cents.

HOME-MIXTURES, ANALYSES AND VALUATIONS.

Station No.	Made by.	Formula, Pounds per ton of Mixture,									Analyses.									Cost (Unmixed) and Valuation.	
		Nitrate of Soda.	Cotton Seed Meal.	Castor Pomace.	Blood, Bone and Meat.	Tankage.	Acid Phosphate.	Dissolved Bone Black.	Ground Bone.	Muriate of Potash.	Nitrogen as Nitrates.	Nitrogen as Ammonia.	Nitrogen, Organic.	Total Nitrogen.	Soluble Phosphoric Acid.	Reverted Phosphoric Acid.	Insoluble Phosphoric Acid.	Total Phosphoric Acid.	Potash.	Cost per Ton.	Valuation per Ton.
5891	S. D. Woodruff & Sons, Orange	150	900	----	----	----	700	----	----	250	.72	----	2.37	3.09	4.42	1.84	.48	6.74	6.61	$ 26.00	21.42
6118	S. D. Woodruff & Sons, Orange										.21	2.18	2.49	4.88	5.38	3.64	1.38	10.40	3.41	------	27.38
6119	S. D. Woodruff & Sons, Orange										1.19	----	3.02	4.21	3.89	4.38	1.77	10.04	9.55	------	29.64
6190	A. C. Lake, Bethlehem	125	500	----	----	500	600	----	----	275	.89	----	3.31	4.20	3.66	4.29	1.12	9.07	7.12	24.25	26.85
6200	F. S. Hopson, Stratford	125	----	----	800	----	----	800	----	275	1.22	----	2.71	3.93	5.29	4.81	1.36	11.46	7.73	28.99	29.01
6201	Andrew Ure, New Haven	100	----	800	----	----	800	----	----	300	.95	----	2.05	3.00	4.61	2.20	.33	7.14	6.79	20.00	21.82
6306	C. E Scranton, Madison	100	----	800	----	----	800	----	----	300	.67	----	1.71	2.38	4.24	2.24	.44	6.92	8.15	26.37	21.02
6307	D Fenn, Milford	210	----	----	----	790	----	630	160	210	1.46	----	2.34	3.80	5.28	6.07	1.83	13.18	6.58	29.59	29.02
6353	G. F. Platt & Son, Milford	200	----	----	700	----	----	700	300	100	1.60	----	2.94	4.54	7.97	3.48	1.82	13.27	2.97	31.88	28.20
6356	N. D. Platt, Milford	100	----	----	666	----	----	666	166	166*	.99	.50	2.85	4.34	3.74	2.58	.81	7.13	12.91	34.19	31.06
6496	J. J. Wilcox, Meriden	100	----	----	----	750	----	750	----	400	.68	----	2.36	3.04	6.48	4.10	1.08	11.66	8.79	------	28.02

* Also 168 pounds of sulphate of potash and 68 pounds sulphate of ammonia.

This potash is in the form of carbonates and phosphates and is particularly prized for tobacco, though it is well suited for other crops.

The analyses which follow were made on samples of cotton hull ashes offered, but not yet sold, into this State.

5615. Offered to Edward Austin, of Suffield, by southern mills as cotton hull ashes. On receipt of the analysis he naturally declined to handle them.

6330. Offered to L. H. Brewer, Hockanum, by F. W. Brode & Co.

ANALYSES.

	5615	**6330**
Soluble Phosphoric Acid	----	.80
Reverted " "	----	4.00
Insoluble " "	----	1.19
Potash Soluble in Water	3.02	10.17
Valuation per ton	----	$15.53

WOOD ASHES.*

These are usually regarded as a potash-fertilizer, but are also and sometimes chiefly valuable as a source of lime, in the form of carbonate.

The twenty-two samples received this season have contained from 3 to 6.7 per cent. of potash soluble in water, and from 1 to 2.6 per cent. of phosphoric acid. In twenty-one samples lime has ranged from 24.5 to 40.8 per cent., carbonic acid from 16 to 28 per cent., sand or other insoluble mineral matters from 3 to 18 per cent. and charcoal from 1 to 7 per cent. The cost has varied from $6.69 to $14.00.

The averages are as follows: For comparison, the averages of 16 samples examined last year are also given (Station Report for 1895, p. 62).

AVERAGE COMPOSITION AND COST OF WOOD ASHES.

	1896	1895
Potash, soluble in water	5½ per cent.	4⅓ per cent.
Phosphoric acid	1½ "	1½ "
Lime	32½ "	34 "
Sand and soil	11 "	12¼ "
Charcoal	2½ "	2 "
Cost	$10.36	$10.75

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* By S. W. Johnson. The analyses are on page 159.

ANALYSES OF COTTON HULL ASHES.

Station No.	Dealer or Purchaser.	Sampled by.	Soluble Phosphoric Acid.	Reverted Phosphoric Acid.	Insoluble Phosphoric Acid.	Potash Soluble in Water.	Cost per Ton.	Valuation per ton.	Potash Costs per Pound in Cents.
6298	John Willoughby, Tariffville	Alfred H. Griffin, Granby	3.71	7.70	.27	30.64	$35.00	$42.53	**3.8**
6180	Olds & Whipple, Hartford	E. P. Brewer, Silver Lane	2.83	9.72	.28	28.30	40.00	41 24	**4.7**
6139	C. N. Dexter & Son, Windsor Locks	John P. Griswold, Poquonock	2.72	7.38	.48	28.78	40.00	39.34	**5.1**
6149	F. S. Bidwell, Windsor Locks	Dan. O. King, Windsor Locks	3.10	7.68	.63	27.12	40.00	38.47	**5.3**
5444	R. A. Parker, Warehouse Point	Station Agent	1.60	8.64	.25	27.57	40.00	38.07	**5.4**
6153	I. L. Spencer, Suffield	Luke F. Woodworth, Thompsonville	2.61	7.43	.50	26.38	40.00	36.88	**5.6**
6044	I. L. Spencer, Suffield	E. S. Seymour, Windsor Locks	2.24	8.25	.60	26.04	40.00	36.99	**5.6**
5885	Olds & Whipple, Hartford	Olin Wheeler, Buckland	2.39	8.10	.27	30.01	45.00	40.85	**5.7**
5628	Olds & Whipple, Hartford	Ernest J. Brewer, Silver Lane	.77	8.69	.33	26.50	40.00	36.17	**5.7**
6130	I. L. Spencer, Suffield	Willard C Sikes, Thompsonville	2.99	8.19	.50	24.72	40.00	36.40	**5.7**
6043	I. L. Spencer, Suffield	F. B. Hathaway, Windsor Locks	1.17	6.45	.23	27.92	40.00	35.75	**5.8**
6299	I. L. Spencer, Suffield	G. A. Harmon, Suffield	2.14	8.62	.55	23.44	40.00	34.63	**6.1**
6170	American Cotton Oil Co.	R. W. Cowles, Tariffville	.96	7.79	.51	19.26	32.00	28.31	**6.2**
5887	R. A. Parker, Warehouse Point	E. F. Thompson, Warehouse Point	1.07	8.67	.29	23.72	40.00	33.69	**6.3**
6116	I. L. Spencer, Suffield	C. J. Sheldon, W. Suffield	1.90	7.48	.69	23.78	40.00	33.63	**6.4**
5771	I. L. Spencer, Suffield	Chas. M. Owen, Suffield	trace	7.19	.36	25.04	40.00	32.37	**6.5**
6189	H. S. Chapman, New York City	H. S. Chapman & Co, Thompsonville	.72	9.12	.55	19.98	36.00	30.11	**6.5**
6079	Geo. Douglass, Thompsonville	A. C. Russell, Suffield	.91	9.20	.32	19.34	36.00	29.67	**6.6**
6188	H. S. Chapman, 271 Broadway, N. Y.	Arthur Sikes, Suffield	.81	6.68	.62	21.30	36.00	29.12	**6.6**
6042	I. L. Spencer, Suffield	F. B. Hathaway, Windsor Locks	1.18	7.01	.48	23.50	40.00	32.00	**6.7**
6450	I. L. Spencer, Suffield	I. O. Van Gelder, W. Suffield	1.06	7.59	.68	22.06	40.00	31.09	**7.0**
6038	W. W. Cooper, Suffield	Chas. H. Wells, Suffield	.54	7.81	.41	20.24	38.00	28.80	**7.2**
6039	Charles L. Spencer	Byron Loomis, Suffield	1.10	8.76	.30	19.98	40.00	30.07	**7.4**
5618	W. W. Cooper, Suffield	Oliver C. Rose, West Suffield	.51	6.61	.77	20.30	38.00	27.78	**7.5**
5886	G. A. Douglass, Thompsonville	C. D. Woodworth, Thompsonville	.79	8.40	.47	17.64	36.00	27.10	**7.5**
6111	I. Luther Spencer, Suffield	Henry M. Rose, West Suffield	1.28	7.76	.61	20.40	40.00	29.81	**7.5**
5707	W. W. Cooper, Suffield	Oliver C. Rose, W. Suffield	none	7.13	.55	18.52	38.00	25.87	**8.3**
6107	I. L. Spencer, Suffield	Chas. D. Cannon, Windsor Locks	1.01	9.11	.49	15.40	40.00	25.82	**9.6**
6168	I. L. Spencer, Suffield	Oliver C. Rose, W. Suffield	----	4.74	1.22	16.02	40.00	21.25	**10.9**
6169	American Cotton Oil Co.	R. W. Cowles, Tariffville	.80	2.75	1.35	4.82	32.00	8.99	**29.0**
5809	J. C. Eddy, agent for G. H. & J. H. Hale	D. L. Brockett, Suffield	----	6.84	.49	19.90	----	26.94	----

The variations in the composition and quality of these ashes are very considerable. Of the samples analyzed this year, ten contain less than 5 per cent. of water-soluble potash and nine less than 30 per cent. of lime. Of the latter, it is but just to state, that all except two contain over 28 per cent. of lime. The average composition has been nearly alike in the two years.

In collecting wood ashes from log-heaps on new-cleared land it is difficult to avoid taking up with them some of the underlying earth. It is very easy also to adulterate them purposely with leached wood ashes, coal ashes or soil. But when "sand and soil" amount to 20 per cent. or more, as was the case in three of last year's samples, it is a question whether the "goods" should not be sold by the acre instead of the bushel or ton.

On the other hand, unadulterated wood ashes may unavoidably include considerable proportions of sand and soil. In our Annual Report for 1879, p. 45, are given three analyses of ashes made in a house stove at Branford that contained, respectively, 18, 22 and 27 per cent. of sand, etc. In ashes carefully prepared at this Station from a weighed quantity of chestnut body wood, cut and seasoned on the premises and burned on a clean brick hearth, were found 15.8 per cent. of "sand and silica." See Annual Report for 1883, p. 69.

In the latter case about $1\frac{1}{3}$ ounces of sand and soil adhered to the rough surfaces of 100 pounds of wood and bark. When this wood was burned there remained, all told, one-half of one per cent. or 8 ounces of ashes, from which the sand, etc., was separated and weighed in the process of analysis.

The low content of water-soluble potash, viz. 3.01 and 2.98 per cent. in **5612** and **5810**, respectively, which is but one-half that found in five other of these samples, does not necessarily indicate adulteration or partial leaching out of soluble matters by exposure to rain. The ashes of chestnut body wood, prepared at this Station as already mentioned, contained but 3 per cent. of water-soluble potash. In the ashes of pine wood less than 2 per cent. of water-soluble potash is sometimes present. Ashes from large or old trees grown on very poor land may contain much less potash, per cent., than exists in ashes of young wood produced on good soil. Ashes from new twigs yield the largest proportion of potash up to 20, 30 or more per cent., and the per cent. of potash in them is usually much greater in early spring than in the following autumn, as during the summer's growth

SOURCES, ANALYSES AND COST OF WOOD ASHES.

Station No.	Dealer.	Sampled or Sent by.	Potash Soluble in Water.	Potash Soluble Only in Acids.	Phosphoric Acid.	Lime, Calcium Oxide.	Carbonic Acid.	Sand and Soil.	Charcoal.	Cost per Ton.
5612*	A. Hartness, Detroit, Mich.	J. N. Barnes, Yalesville	3.09	0.80	1.41	29.07	18.84	12.34	2.35	$ 9.50
5613*	" " "	L. B. Yale, Meriden	6.10	0.77	1.71	29.37	17.59	16.95	2.20	9.50
5636*	" " "	A. E. Plant, Branford	6.66		1.47	29.15	16.66	13.86	1.71	9.50
5637*	" " " 2d car	" " "	6.55		1.65	28.60	16.09	14.17	1.81	9.50
5776	" " "	G. E. Pierce, Roxbury	4.98		1.30	----	----	----	---	11.00
6448	" " "	H. C. C. Miles, Milford	6.19		1.56	32.42	16.89	12.23	3.27	14.00
5810	" " "	John Ives, Meriden	2.98		1.39	36.69	23.69	16.29	3.31	6.69
6498	" " "	J. H. Webb, New Haven	4.75		1.24	28.80	17.55	11.72	1.44	9.25
6499*	" " "	J. Norris Barnes, Yalesville	4.81		1.39	24.46	16.27	16.90	2 30	10.00
6500*	" " "	" " "	3.79		1.14	28.49	18.06	10.17	1.37	10.00
6502	" " "		5.70		1.71	40.76	28.14	7.35	0.99	11.50
5022†	Munroe, Lalor & Co., Oswego, N. Y.	Geo. E. Pierce, Roxbury	4.25		1.32	36.00	22.16	11.28	1.50	11.00
6246*	" " " "	" " "	3.90		1.05	32.37	18.46	11.14	3.69	10.00
6272	" " " "	W. F. Whitney, Yalesville	4.64		1.45	31.95	20.33	14.66	4.20	11.00
6488*	" " " "	J. H. Burton, New Haven	3.44	1.05	2.65	29.43	19.37	6.96	1.62	10.50
6093*	" " " "	A. N. Clark, Milford	5.97		1.51	37.16	21.94	5.12	2.09	12.00
6341	" " " "	W. G. & F. Comstock, E. Hartford	5.40		1.23	40.42	21.38	2.99	1.06	11.00
6273	" " " "	T. D. Barclay, Kent	5.41		1.59	34.29	23.69	11.39	2.97	11.00
6274*	Allison, Stroup & Frost, New York City	Atwater Brothers, New Haven	4.10		1.39	25.66	15.21	18.05	7.17	9.50
6148	James Perkins, Suffield	W. H. H. Miller, Glastonbury	4.09		2.10	37.82	24.32	7.47	4.49	11.00
6247	Schwartz Bros., Rockville	C. A. Birge, Suffield	5.64		1.57	34.49	20.48	6.73	1.75	10.60
6505*		Talcott Bros., Talcottville Dwight N. Clark. Woodbridge	5.16		1.49	38.44	22.10	4.28	---	10.00
		Highest per cent. or cost	6.66		2.65	40.76	28.14	18.05	7.17	14.00
		Lowest " "	2.98		1.05	24.46	16.09	2.99	0.99	6.69
		Average " "	5.53		1.51	32.65	19.96	11.05	2.56	$10.36

* Carloads.

† Contained 7.64 per cent. of moisture.

lime and magnesia accumulate in the wood and bark, while potash is largely transferred to the new-formed buds.

When ashes containing fine sand (quartz or silica), are intensely heated, some of the potash and silica may melt together, forming a slag or cinder, which does not yield its alkali to water and requires strong acids to dissolve out the potash. In samples **5612, 5613** and **6488** the amounts of potash soluble only in acids were determined. These amounts, respectively, were 0.80, 0.77 and 1.61 per cent.; this potash insoluble in water can be of little or no use to the land or crops.

In respect to **5612** it must be concluded that either the car load or the sample, or both, had been half leached. This is an inevitable inference from the statement that **5613** "was the same ashes as **5612** but from another car," and from the fact that, except as regards water-soluble potash, the two samples have practically the same composition.

As respects the cost of lime in these ashes we find that, taking the average price of the ashes, viz. $10.36 a ton, and allowing 5 cents a pound each for phosphoric acid and water-soluble potash, the average cost of pure lime (calcium oxide) in the 21 samples whose lime content is stated, would be 51 cents a hundred pounds. In **6499,** at $10.00 a ton, the hundred weight of lime cost 78 cents. The lime in **6448,** for which was paid $14.00 the ton, cost 96 cents a hundred weight. But in **5810,** bought for $6.69 per ton, lime was obtained for 32 cents per hundred.

Slacked Oyster Shell Lime can now be got in New Haven, of H. A. Stevens, 39 South Front St., for 12 cents per bushel, in bulk, f.o.b. cars. The bushel is stated by Mr. Stevens to weigh about 50 lbs. The ton of Oyster Shell Lime, accordingly, costs $4.80 on cars at New Haven. If containing 65½ per cent. of pure lime (calcium oxide), as did a sample analyzed by this Station in 1892, the hundred pounds of pure lime would cost 37 cents.

LIME KILN ASHES.*

5614. Sampled and sent by Canfield Bros., East Canaan.

6497. Bought of the Canaan Lime Co., Canaan. Sampled and sent by Lyman H. Francis, Meriden. Cost $3.75 per ton, delivered at Meriden.

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* By S. W. Johnson.

ANALYSES.

	5614	6497
Potash soluble in water	1.47	1.75
Phosphoric acid	1.30	.65
Lime	38.52	36.57
Magnesia	17.32	17.45
Carbonic acid	27.58	----
Charcoal	1.14	6.59
Sand and Soil	2.01	1.89
Moisture, combined water and other matters, (by difference)	27.98	35.10*
	100.00	100.00

These "Ashes" consist in large part of carbonates of lime and magnesia coming from the magnesian limestone which occurs in the Canaan region, and in smaller part of carbonates of potash and lime, of phosphoric acid, charcoal, etc., from the ashes of the fuel consumed in burning the limestone. For use as a fertilizer or amendment, applied to land, we may consider lime and magnesia as of equal value, and may class them together in comparing the value or cost of these materials with that of other sources of lime. In **6497** the cost of lime and magnesia was 51 cents per hundred pounds at Meriden.

These Lime Kiln Ashes are now put on cars at Canaan for $2.25 per ton in bulk, by the Canaan Lime Co. They weigh about 75 lbs. per bushel.

GROUND TOBACCO STEMS AND TOBACCO DUST.

6109. "Tobacco Dust," stated to be floor sweepings from a mill where tobacco stems are ground. It was packed in barrels and was "to be sold according as it analyzes." Sampled and sent by G. A. Harmon, Suffield, from stock of Wm. S. Pinney, Suffield.

5626. Ground Tobacco Stems from the Henderson Tobacco Co., Danville, Va. Sampled and sent by J. H. Hale. Cost per ton $7.50, f.o.b., Danville.

5884. Ground Tobacco Stems. Sold by Olds & Whipple Hartford. Sampled and sent by Wm. S. Pinney, Suffield.

6214. Ground Tobacco Stems. Sold by Olds & Whipple Hartford. Sampled and sent by H. S. Frye, Poquonock.

ANALYSES OF TOBACCO STEMS AND TOBACCO DUST.

	6109	**5626**	**5884**	**6214**
Nitrogen	1.91	1.18	2.58	3.13
Phosphoric acid	.52	.56	.70	.86
Potash	1.96	5.16	7.06	9.63
Chlorine				trace.
Cost per ton	$7.00	7.50*	20.00	20.00
Valuation per ton	$7.00	7.99	13.88	17.91

* f.o.b. Virginia (?).

For valuation, nitrogen, phosphoric acid and potash are reckoned at 12, 4½ and 5 cents per pound, respectively.

SWAMP MUCK.*

6491. A sample of swamp muck, received from E. R. Gillette, Colchester, is remarkable for containing one-third its weight of matters freely dissolved by cold water, consisting chiefly of sulphates and humates of iron, aluminum and manganese. Its composition was found as follows:

ANALYSIS OF SWAMP MUCK.

Soluble in water.	Sulphuric Acid (SO_3)	9.32	33.97
	Oxides of Iron, Aluminum and Manganese	9.80	
	Humic Acid (by difference)	14.85	
Insoluble in water.	Humus (by difference)	30.22	66.03
	Sand and Soil	35.81	
			100.00

The organic matter (humic acid and humus) contained 0.51 per cent of nitrogen.

The muck was half-dry when received. The analysis refers to the substance completely dried at 212° F.

This sample has the sourish odor that is characteristic of a mixture of vegetable matter and oil of vitriol. Its taste is acid and astringent like that of green vitriol (copperas, also known as protosulphate of iron and as ferrous sulphate), which is, in fact, its chief water-soluble ingredient.

Such muck is poisonous to vegetation. If well mixed with a quarter its weight of lime or wood ashes, the iron and aluminum sulphates will be decomposed, and after a little exposure to the air it will become harmless.

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*By S. W. Johnson.

REVIEW OF THE FERTILIZER MARKET.

FOR THE YEAR ENDING NOVEMBER 1ST, 1896.

BY E. H. JENKINS.

NITROGEN.

Nitric Nitrogen.

The *wholesale* New York quotation of nitrogen in this form was 11.6 cents in November, 1895. It fell to 10.7 cents in April, and since then has risen gradually to 11.3 cents in October, 1896.

The average of the monthly quotations (given on page 168) shows that nitrate of soda has ruled lower this year than for some years previously. The figures are as follows :

Year	1896	1895	1894	1893	1892	1891	1890
Average quotation	11.1	11.4	13.0	12.7	12.1	12.9	11.5

The *retail* price of nitrogen in nitrate in this State at freight centers has been about 14.2 cents per pound.

Ammonic Nitrogen.

The *wholesale* New York quotations of nitrogen in the form of sulphate of ammonia have been very much lower than in 1894 and 1895. The monthly quotation in November, 1895, was 12.0 cents per pound. It has fallen steadily since then, being quoted in October, 1896, at 10.5 cents per pound; less than the quotation for nitrogen in nitrate of soda during the same month.

The average of the year's monthly quotations has been 11.1.

The corresponding averages for the years 1895, 1894, 1893, 1892 and 1891 were respectively, 14.3, 17.3, 15.7, 14.5 and 15.6 cents, so that sulphate of ammonia has ruled lower than for a considerable term of years.

There has been but slight demand for sulphate of ammonia in the Connecticut retail market. Nitrogen in this form has cost at retail from 15½ to 17 cents per pound.

Organic Nitrogen.

The *wholesale* New York quotations of nitrogen in the forms of red blood, black or low grade blood and concentrated tankage for each month in the year are shown in the table on page 168. Azotin has not been quoted this year.

It will be seen that nitrogen in all these forms of animal matter has been cheaper than in the years 1894 and 1895, and that both high grade and low grade blood have declined in price since January.

But these forms of organic nitrogen do not often appear in our retail market.

Low grade tankage, fish, bone, and cotton seed meal are the forms most used by those who depend on home-mixing or the use of fertilizer chemicals rather than on factory mixtures.

PHOSPHATIC MATERIALS.

Rough bone and ground bone were quoted at $19.50 and $22.75 per ton, wholesale, until August, when the quotations were $18.70 and $22.55, respectively. In September and October they were $16.50 and $21.75.

Rock phosphate has shown no considerable changes in quotation during the year.

Sulphuric acid quotations have remained unchanged.

Available phosphoric acid in dissolved rock phosphate has been quoted during the season at prices ranging from 2.62 to 2.73 cents per pound, *wholesale.*

Dissolved phosphate rock has during the past year figured somewhat in our retail market, and there will no doubt be a further demand for it the coming season. For analyses see pages 110 and 111.

POTASH.

Muriate of Potash.

Since January, potash in this form has been quoted, *at wholesale*, at 3.60 cents per pound, the same as in 1895.

The retail price in Connecticut has ranged from 3.9 to 4.4 cents per pound.

The Double Sulphate of Potash and Magnesia.

Since April last, the *wholesale cost* of potash in this salt has been 3.94 cents, nearly four-tenths of a cent per pound less than in 1895.

At retail, in Connecticut, it has cost from 4.9 to 6.3 cents per pound.

High Grade Sulphate of Potash.

The *wholesale* New York quotation of potash in this form, which was 4.34 cents per pound in November 1895, fell in April, 1896, to 4.10 cents, and has remained at that figure ever since.

At retail, in Connecticut, potash in high grade sulphate has been sold at prices ranging from 4.9 to 6.3 cents per pound, and averaging 5.6 cents.

The review of the market quotations indicates that red and black blood, nitrate of soda and sulphate of ammonia, have fallen in price somewhat during 1896, and concentrated tankage has remained quite steady, at the same price as in 1895, till within a few months, when it has declined.

There has also been a slight decline in the quotations of potash salts.

Available phosphoric acid in dissolved rock has somewhat risen in price.

These quotations are taken from the "Oil, Paint and Drug Reporter," published in New York. The weekly quotations for each month are averaged, and this average is taken as the quotation for the month.

The following explanations will help in the examination of the market quotations, and will also show the basis on which they have been interpreted in this review:

Phosphate rock, kainit, bone, fish-scrap, tankage and some other articles are usually quoted and sold by the ton. The seller usually has an analysis of his stock, and purchasers often control this by analysis at the time of the purchase.

Sulphate of ammonia, nitrate of soda and the potash salts are quoted and sold by the pound, and generally their wholesale and retail rates do not differ very widely.

Blood, azotin and concentrated tankage are quoted at so much "per unit of ammonia." To reduce ammonia to nitrogen, multiply the per cent. of ammonia by the decimal .824 (or multiply the per cent. of ammonia by 14 and divide that product by 17). A "unit of ammonia" is one per cent., or 20 pounds per ton. To illustrate: if a lot of tankage has 7.0 per cent. of nitrogen, equivalent to 8.5 per cent. of ammonia, it is said to contain 8½ units of ammonia, and if quoted at $2.25 per unit, a ton of it will cost $8\frac{1}{2} \times 2.25 = \$19.13$.

The term "ammonia" is *properly* used only in those cases where the nitrogen actually exists in the form of ammonia, but it is a usage of the trade to reckon all nitrogen, in whatever form it occurs, as ammonia.

To facilitate finding the actual cost of nitrogen per pound from the cost per unit of ammonia in the market reports, the following table is given:

Ammonia at	$3.00	per unit	is equivalent to	Nitrogen at	18.2	cts. per lb.
"	2.90	"	"	"	17.6	"
"	2.80	"	"	"	17.0	"
"	2.70	"	"	"	16.4	"
"	2.60	"	"	"	15.8	"
"	2.50	"	"	"	15.2	"
"	2.40	"	"	"	14.6	"
"	2.30	"	"	"	14.0	"
"	2.20	"	"	"	13.4	"
"	2.10	"	"	"	12.8	"
"	2.00	"	"	"	12.2	"
"	1.90	"	"	"	11.6	"
"	1.80	"	"	"	11.0	"
"	1.70	"	"	"	10.3	"
"	1.60	"	"	"	9.7	"
"	1.50	"	"	"	9.1	"

Commercial sulphate of ammonia contains about 20.8 per cent. of nitrogen, though it varies somewhat in quality. With that per cent. of nitrogen (equivalent to 25.25 per cent. of ammonia),

If quoted at	2.6	cents per pound,	Nitrogen	costs	12.5	cents per pound.
"	2.5	"	"	"	12.0	"
"	2.4	"	"	"	11.5	"
"	2.3	"	"	"	11.1	"
"	2.2	"	"	"	10.6	"
"	2.1	"	"	"	10.1	"
"	2.0	"	"	"	9.6	"

Commercial nitrate of soda averages 95 per cent. of pure sodium nitrate, or 16 per cent. of nitrogen.

If quoted at	2.5	cents per pound,	Nitrogen	costs	15.6	cents per lb.
"	2.4	"	"	"	15.0	"
"	2.3	"	"	"	14.4	"
"	2.2	"	"	"	13.8	"
"	2.1	"	"	"	13.2	"
"	2.0	"	"	"	12.5	"
"	1.9	"	"	"	11.9	"
"	1.8	"	"	"	11.3	"
"	1.7	"	"	"	10.6	"
"	1.6	"	"	"	10.0	"
"	1.5	"	"	"	9.4	"

Commercial Muriate of Potash usually contains 50½ per cent. of "actual potash," or potassium oxide.

If quoted at	2.20	cents per pound,	Potassium Oxide	costs	4.35	cents per lb.
"	2.15	"	"	"	4.25	"
"	2.10	"	"	"	4.15	"
"	2.05	"	"	"	4.06	"
"	2.00	"	"	"	3.96	"
"	1.95	"	"	"	3.86	"
"	1.90	"	"	"	3.76	"
"	1.85	"	"	"	3.66	"
"	1.80	"	"	"	3.56	"
"	1.75	"	"	"	3.46	"
"	1.70	"	"	"	3.36	"

High Grade Sulphate of Potash, as it is found in the Connecticut market, contains about 49.2 per cent. of actual potash.

If quoted at	2.50	cents per pound,	Potassium Oxide	costs	5.1	cents per lb.
"	2.45	"	"	"	5.0	"
"	2.40	"	"	"	4.9	"
"	2.35	"	"	"	4.8	"
"	2.30	"	"	"	4.7	"
"	2.25	"	"	"	4.6	"
"	2.20	"	"	"	4.5	"
"	2.15	"	"	"	4.4	"
"	2.10	"	"	"	4.3	"
"	2.05	"	"	"	4.2	"
"	2.00	"	"	"	4.1	"

The Double Sulphate of Potash and Magnesia has about 26½ per cent. of potassium oxide.

If quoted at	1.00	cents per pound,	Potassium Oxide	costs	3.77	cents per lb.
"	1.05	"	"	"	3.96	"
"	1.10	"	"	"	4.15	"
"	1.15	"	"	"	4.34	"
"	1.20	"	"	"	4.53	"
"	1.25	"	"	"	4.72	"
"	1.30	"	"	"	4.90	"

The following table shows the fluctuations in the wholesale prices of a number of fertilizing materials in the New York market, since November, 1892. The price given for each month is the average of the four weekly quotations of that month. Sulphate of ammonia is assumed to contain 20.8 per cent. and nitrate of soda 16.0 per cent. nitrogen, muriate of potash 50½ per cent., high grade sulphate 49.0 per cent. and double manure salt 26.5 per cent. of actual potash.

WHOLESALE PRICES OF FERTILIZING MATERIALS.

		Cost of Nitrogen at wholesale in						Cost of Potash at wholesale in			Available Phosphoric Acid in Dissolved South Carolina Rock. Cents per pound.
		Dried Blood.									
		Red. Cents per pound.	Black or low grade. Cents per pound.	Azotin or Ammonite. Cents per pound.	Concentrated Tankage. Cents per pound.	Nitrate of Soda. Cents per pound.	Sulphate of Ammonia. Cents per pound.	Muriate of Potash. Cents per pound.	Double Manure Salt. Cents per pound.	High Grade Sulphate of Potash. Cents per pound.	
1892.	November	14.1	13.8	13.7	----	13.7	14.0	3.78	4.77	4.48	3.30
	December	14.6	14.2	14.8	----	13.7	14.0	3.78	4.77	4.48	3.30
1893.	January	16.2	15.8	15.9	12 3	13.8	14.0	3.51	4.25	4.70	3.33
	February	18.5	18.0	17.9	15.7	14.1	14.0	3.56	4.32	4.16	3.09
	March	20.0	19.8	19.6	19.3	14.7	15.6	3.56	4.32	4.16	3.09
	April	18.0	17.7	18.1	19.3	14.6	17.1	3.56	4.32	4.16	3.09
	May	16.2	15.4	16.4	18.3	13.0	17.1	3.56	4.32	4.16	3.09
	June	14.5	14.0	14.8	14.2	11.0	15.9	3.75	4.32	4.16	3.09
	July	13.7	13.1	13.7	14.2	11.1	14.9	3.75	4.32	4.16	3.09
	August	13.5	12.1	13.9	14.2	11.4	15.6	3.75	4.25	4.16	3.09
	September	12.5	12.2	13.2	14.2	11.6	15.9	3.75	4.32	4.16	3.09
	October	16.2	15.3	15.3	17.1	11.9	16.4	3.75	4.32	4.16	3.09
	November	16.6	15.7	16.6	16.3	11.7	16.4	3.74	4.33	4.15	3.09
	December	16.1	15.3	16.1	16.3	11.3	16.4	3.74	4.33	4.15	3.09
1894.	January	15.9	14.7	16.0	15.9	12.0	16.7	3.58	4 30	4.18	3.09
	February	15.9	15.2	15.9	15.4	11.7	18.4	3.71	4.44	4.28	3.09
	March	15.5	14.6	15.5	15.4	13.0	18.5	3.71	4.44	4.28	3.09
	April	14.5	13.9	14.2	13.3	14.0	17.6	3.84	4.54	4.39	2.98
	May	14.5	13.8	14.2	12.2	14.4	16.7	4.13	5.04	4.85	3.00
	June	13.2	12.6	13.1	12.2	14.3	16.7	4.13	5.04	4.85	3.00
	July	12.6	12.6	12.9	12.2	13.8	16.8	4.13	5.04	4.85	3.00
	August	13.3	12.6	13.3	12.3	13.7	17.7	4.13	5.04	4.85	3.09
	September	15.7	14.5	15.4	12.3	13 5	18.3	4.13	5.04	4.85	3.12
	October	15.1	14.4	15.2	12.4	12.9	17.5	4.13	5.04	4.85	3.12
	November	14.1	13.1	14.0	12.3	13.2	16.4	4.13	5.04	4.85	3.00
	December	13.5	12.4	13.1	12.3	12.9	16.0	4.13	5.04	4.85	3.10
1895.	January	12.7	12.2	13.0	12.3	12.1	15.0	3.54	4.24	4.13	3.50
	February	11.9	11 2	----	12.3	11.4	15 0	3.54	4.24	4.13	3.37
	March	12.1	10.5	----	12.3	10.4	15.0	3.59	4.32	4.20	3.37
	April	11.7	10.6	----	12 3	10.3	15.0	3.59	4.32	4.20	3.37
	May	12.1	10.8	----	12.3	10.5	14.3	3.59	4.32	4.20	3.37
	June	11.7	10 9	----	12.3	11.0	13.6	3.59	4.32	4.20	3.37
	July	11.6	10.7	----	12.3	10.9	13.4	3.60	4.32	4.20	3.37
	August	11.5	10.2	----	12.3	10.8	13.1	3.60	4.32	4.20	3.37
	September	11.8	10.2	----	12.3	11.3	13.0	3.60	4.32	4.20	3.23
	October	11.8	10.2	----	12 3	11.7	12.2	3.60	4.32	4 20	2.62
	November	11.7	9.9	----	12.3	11.6	12.0	3.60	4.32	*4.34	2.62
	December	11.7	9.8	----	12 3	11.1	12.0	3 60	4.32	4.34	2.62
1896.	January	11.0	9.8	----	12.3	10.8	11.6	3.60	4.32	4.34	2.62
	February	10.8	9.8	----	12.3	10.7	11.3	3.55	3.99	4.13	2.62
	March	10.8	9.8	----	12.3	10.7	11.5	3.53	3.87	4.05	2.73
	April	10.8	9.8	----	12.3	10.7	11.1	3.60	3 94	4.10	2.73
	May	10.7	9.9	----	12.3	10.9	10.8	3.60	3.94	4.10	2.73
	June	10.5	9.8	----	12.3	10.8	10.8	3.60	3.94	4.10	2.73
	July	10.5	9.8	----	12.6	10.8	10.8	3.60	3.94	4.10	2.73
	August	10.5	9.8	----	11.4	10.8	10.7	3.60	3.94	4.10	2.73
	September	10.2	9.1	----	9.5	10.8	10.5	3.60	3.94	4.10	2.73
	October	10.3	9.0	----	9.5	11.3	10.5	3.60	3.94	4.10	2.73

* Calculated on basis of 49 per cent. potash in the salt.

THE PROPER USE OF TABLES OF ANALYSES OF FERTILIZERS AND FERTILIZER CHEMICALS.

BY E. H. JENKINS.

On page 162 of the Report for 1895 is a paper by the Director of this Station, on The Best Economy of Concentrated Fertilizers.

The paper is designed to illustrate the facts that "the interests of those who buy as well as of those who sell commercial fertilizers can be best promoted by a knowledge, well applied, of all the factors of crop-production; that the plant, like the man, to flourish, not only requires an abundant and varied bill of fare, but also a suitable lodging and the comforts of a well-appointed home; that the best economy of commercial fertilizers is to be attained by intelligently investigating what special wants of the soil or crop their various grades are adapted to meet, and what further wants of soil or crop must be attended to in order to prevent that impoverishment of land and landholder which otherwise, sooner or later, is likely to ensue—the experience of which has led many agriculturists to the erroneous conclusion that concentrated fertilizers are 'stimulants and not nourishment,' and that they 'exhaust the soil,' whereas they merely aid the farmer to exhaust the soil by rapidly removing, in the crops, substances which the soil unaided can supply but slowly or insufficiently and by impairing or destroying one or several of those conditions which are indispensable to plant-production."

This knowledge the farmer can get, partly from books, but in part only by careful and constant observation and experiment on his own land.

He must know, for instance, whether the water supply and drainage and texture of his soil are such that fertilizers can come to effect on his crops; whether his soil is specially deficient in some one ingredient, as lime or potash; and what elements of plant food his several crops take off from his soil, and how much of them he can put back in crop residues and in stable manure.

Only when he knows these things can he make rational use of the analyses of commercial fertilizers and fertilizer chemicals, which are yearly published by this Station.

For it is clear that if his soil is cold and sour because of deficient drainage, or is parched with drought in summer, money spent in any kind of fertilizers is likely to be thrown away.

Again if his soil greatly lacks available nitrogen or potash, his first effort must be to supply these things by heavy dressings of nitrogenous manures or potash fertilizers, and until this is done, it will be of little use to apply phosphoric acid.

The question regarding commercial fertilizers to be settled with the help of this knowledge of his land and cropping is :—

For the given crop, how many pounds per acre of nitrogen, of phosphoric acid and of potash is it wise to apply?

It is in order to supply these three ingredients that commercial fertilizers are used. If these are not lacking in the soil, it is idle to use commercial fertilizers at all.

We will suppose that in the given case the purchaser has decided to use per acre 65 pounds of nitrogen,—20 of it in form of nitrate,—50 of phosphoric acid and 90 of potash.

He is now ready to avail himself of the facts which it is the business of this Station to supply, and which will be found, in part, in the pages of this Report.

In studying the tables of analyses the first question will not be —which brand of factory-mixed goods shows the highest Station valuation or the least difference between cost and valuation, but rather how can this 65 pounds of nitrogen, 50 of phosphoric acid and 90 of potash be bought in the most available forms and at the lowest price? To find this out he does not need to depend on Station "Valuations" for help.

He can *himself* make valuations more accurate *for his special use*, than the Station can make.

There are two reasons for this. The Station Valuations are a general approximation, not for any particular place, but for freight centers throughout the State. The buyer's valuation should be quite accurate for his particular town or village.

Again, the Station Valuations are based on average quotations for six months or a year. The buyer's valuation should be true for the week in which he makes his purchase.

The Station's duty is to show what different articles contain, what their agricultural value under test conditions is, to protect from frauds in fertilizers and to give what general information it can on the subject of fertilization.

It is the buyer's business, not the Station's, to learn what his fertilizers will cost him and in what particular way he can buy cheapest.

Now the 65 pounds of nitrogen, 50 of phosphoric acid and 90 of potash can be bought in one of two ways; either mixed, finely ground and ready to apply at once in commercial "Phosphates," "Superphosphates" and "Special Manures," or separately in form of agricultural chemicals, etc., to be pulverized if necessary, and mixed or applied to the land separately.

In any case, the next thing is to find out the actual cost of nitrogen, phosphoric acid and potash, when bought for cash, each by itself.

This the Station undertakes in order to fix its schedules of valuations and the business man would do the same before purchasing stock of any kind.

The system of valuation is correct in principle, and there is not a successful fertilizer manufacturer in the country who does not resort to it in buying his raw materials.

The system has been misrepresented as being an attempt to indicate what the fair price of a fertilizer is. It is nothing of the sort; but shows, and only claims to show, what the amounts of nitrogen, phosphoric acid and potash contained in a fertilizer would cost *on the average*, for cash, at freight centers in raw materials, unmixed.

This information is of great value as a general guide to buyers.

After twenty years experience under this system it is, however, believed that the progressive farmers of this State are perfectly capable of making valuations to suit their own particular cases, which will be more accurate for their own conditions of market than any which the Station can make.

In what follows it is shown how a valuation or schedule of valuations may be made, accurate for the time and place where made, and how it may be used by the practical farmer.

NITROGEN.

It has been shown on previous pages of this Report, that the materials now in the Connecticut retail market in which *organic nitrogen* is the leading ingredient, are dry fish, cotton seed meal, linseed meal and castor pomace.

(Dried blood is not generally offered at retail; the "tankage" in market—known to the trade as "bone tankage"—is more a phosphatic than a nitrogenous fertilizer.)

No better forms of organic nitrogen exist than the vegetable matters named above.

The experiments made at this Station during the last three years, as well as the experiments of Wagner, previously made in Germany, indicate that the nitrogen of dried blood, and that of cotton seed, linseed and castor pomace are about equally available; and are more available than the nitrogen of fish, bone, or tankage.

Therefore the choice must be determined chiefly by the cost of nitrogen, with due regard also to the mechanical condition of the material.

Linseed meal—screened for fertilizer use—and cotton seed meal are of equal fineness; the linseed drills rather easier because free from lint. Castor pomace is somewhat coarser.

It appears that the cost of nitrogen per pound in these various articles in the spring of 1896 has been as follows:—

	Average.	Extremes.
In Cotton Seed Meal	**12.7**	11.2–15.5
Linseed Meal	**12.9**	12.3–13.7
Castor Pomace	**17.9**	15.6–20.6
Dry Fish	**14.5**	11.4–16.6

It is seen that organic nitrogen has been obtainable for 13 cents per pound, and that it has cost as low as 11.2 or as high as 18.2 cents, depending on the purchaser's distance from large markets, his care in buying and the use he has made of the Station in testing the quality of the material offered him.

That is, he *may have* saved 7 cents per pound, or $4.55 for 65 pounds of nitrogen, by care in buying the one item of nitrogen.

He may reckon on getting the following quantities of nitrogen, phosphoric acid and potash in every 100 pounds of cotton seed meal, linseed meal, or castor pomace that he buys.

	Nitrogen.	Phosphoric Acid.	Potash.
In Cotton Seed Meal	6.9	2.8	1.8
Linseed Meal	6.6	1.8	1.2
Castor Pomace	4.8	3.0	1.0

But if buying considerable quantities, it will in any case be wise for the purchaser to send samples to the Station for analysis and in *all* cases to buy with a distinct guarantee.

We will assume that he can buy cotton seed meal at $22.00 per ton containing 6.9 per cent. of nitrogen, 2.81 per cent. of phosphoric acid and 1.85 per cent. of potash, in which therefore nitrogen costs him 12.8 cents per pound; and that he chooses this form of organic nitrogen.

The nitrogen of nitrates can only be bought economically in nitrate of soda, at a cost of from 12.7 to 15.0 cents per pound, as appears from the figures given on page 102.

We will assume that he can buy nitrate of soda, containing 16 per cent. of nitrogen, for $45.00 per ton.

Phosphoric Acid.

The two available forms in which this is found in market, practically free from other fertilizer ingredients, are "acid phosphate"—rock phosphate dissolved by oil of vitriol—and "dissolved bone black."

There is no reason to believe that the soluble or "reverted" phosphoric acid in one of these is any more easily available to plants than in the other.

The acid phosphate is the form used by most manufacturers of fertilizers on account of its greater cheapness. It has a tendency, however, to cake or set, especially when mixed with nitrate or potash salts, unless some dry material, like cotton seed or linseed meal, bone dust, or the like is added. Dissolved bone black, however, never sets in this way.

Available (water-soluble and citrate-soluble) phosphoric acid can be bought in dissolved bone black for 6.6 cents per pound.

In acid phosphate it costs considerably less, but for some reason acid phosphate is not commonly sold by retail dealers in Connecticut.

It is, however, extensively used by farmers in other States with excellent results, and can be readily bought in the New York and New Jersey markets at low prices.

In car lots it was laid down at freight centers for $10.60 per ton or less, in the spring of 1896, and if there were demand for it, could probably be retailed for $15 or less per ton, thus making the cost of available phosphoric acid about 4½ to 5c. per pound.

We assume, for the purpose of our illustration, that the purchaser can buy acid phosphate, containing 14 per cent. of available phosphoric acid, for $16.00 per ton.

POTASH.

Leaving ashes out of account, the chief sources of potash for agricultural use are imported potash salts, viz: muriate, high grade sulphate and double sulphate.

	Averages.	Extremes.
Potash in Muriate..........costs cents per pound	4.16	3.9–4.3
" " high grade Sulphate.... " "	5.10	4.9–5.2
" " low " " .... " "	5.60	4.9–6.3

Returning now to the assumed case in which the farmer wishes to get 20 lbs. of nitrate nitrogen, 45 lbs. of organic nitrogen, 50 lbs. of available phosphoric acid, 90 lbs. of potash:—

From the data furnished in this Report and the quotations given by dealers, he can calculate very accurately what they will cost laid down at his freight station as follows:—

We assume that he can buy nitrate of soda for $45 per ton, or $2.25 per 100 lbs.; cotton seed meal for $22.00, or $1.10 per 100 lbs.; acid phosphate for $16.00, or 80 cents per 100 lbs.; and muriate of potash for $42.50 per ton, or $2.13 per 100 lbs.

To get 20 lbs. of nitrate nitrogen he needs 125 lbs. of nitrate of soda, costing $2.82.

Forty-five lbs. organic nitrogen require 652 lbs. cotton seed meal, costing $7.17. This quantity of meal also carries about 2.8 per cent. or 18 lbs. of phosphoric acid and 1.8 per cent. or 11 lbs of potash.

To get the remaining 32 lbs. of phosphoric acid will require, say 230 lbs. of acid phosphate, costing $1.84, and the remaining 79 lbs. of potash will require 158 lbs. of muriate, costing $3.36.

125	pounds	Nitrate of Soda, costing............	$2.82
652	"	Cotton Seed Meal "	7.17
230	"	Acid Phosphate "	1.84
158	"	Muriate of Potash "	3.37
1165	"	costing..........................	$15.20

This represents a cost *per ton* of unmixed chemicals of $26.10, with the following composition:

Nitrogen as Nitrates..................	1.71	per cent.
" Organic....................	4.00	"
Available Phosphoric Acid............	4.30	"
Potash as Muriate....................	7.72	"

The figures which represent the *actual costs of* nitrogen, phosphoric acid and potash in these unmixed chemicals are the careful purchaser's "Schedule of trade values," which he will apply to the ready-mixed goods that are offered to him, viz:

Nitrogen as Nitrates	14 cents.
" Organic	12.8 "
Available Phosphoric Acid	5.8 "
Potash as Muriate	4.2 "

To illustrate: one of the high-grade factory-mixed fertilizers recently analyzed contains:

Nitrogen as Nitrates	2.91 per cent.
" Organic	2.17 "
Available Phosphoric Acid	7.6 "
Potash as Muriate	6.8 "

and costs $38 per ton.

This contains somewhat less nitrogen and potash and a good deal more phosphoric acid than the particular formula of chemicals above given; and on the whole contains per ton more cash value of fertilizer ingredients by about $1.75. Deducting this from $38.00, the cash price, we have $36.25.

This $36.25 is then the price at which the farmer could buy approximately the same amount of chemicals as his formula contains, finely ground, thoroughly mixed, bagged and ready to put on his land.

The difference between $36.25 and the cost, $26.10, of the chemicals unground and unmixed, namely, $10.15, is the price he must pay for having the work of grinding and mixing done for him.

This brings him to the last question of all: Which is the cheaper, to grind and mix myself or have it done for me.

If he is using only small quantities of fertilizer, half a ton or less, or if he does not attend to it till the pressure of spring work is upon him, unquestionably the latter course is cheapest; if the chemicals are, as is often the case, fine and dry, or can be bought milled fine, for only a slight advance, and the amount used is large, it will often pay well to do the mixing at home. No general rule can be given, each farmer must figure and experiment for himself.

In what has been said we have taken for illustration quickly available but also the cheapest forms of nitrogen, phosphoric acid and potash which are on the market.

These are not always the most economical to use.

For instance, muriate of potash on tobacco is fatal to the crop, and the quality of potatoes may be injured by it, so that the higher priced sulphate is used instead.

Again, some soils which are deficient in lime, as well as potash, are more economically supplied with both at once in form of wood ashes, than by separate applications of oyster shell or stone lime and a potash salt.

It is very likely that cotton hull ashes, by reason of the alkali in them, pay better to use on some soils than either the muriate or sulphate of potash, although the actual potash in them costs considerably more.

Where moist land is laid down to grass, fine bone is preferred by many to the more soluble and quickly available forms of nitrogen and phosphoric acid.

There is often great advantage, too, in changing the form of fertilizer from time to time, rather than in dressing the land year after year in the same way. Such a change prevents an undue accumulation in the soil of any one ingredient not assimilated by the crop in considerable quantity. For instance, the use of superphosphate year after year, for a long time, may cause an accumulation of sulphates which, by reducing the amount of carbonate of lime within the soil, or in other ways, may be injurious.

All these points demand the careful attention of the farmer and are matters which each individual must attend to for himself.

To recapitulate :—

1. Before buying fertilizers in any quantity the farmer should decide—from what he can find out about his land and the past and prospective cropping,—how many pounds of nitrogen, phosphoric acid and potash he will use per acre, and whether any particular forms of these ingredients are specially desirable.

This decision, involving as it does, some thought and study, though it may not accurately meet the needs of land and crop, will make clear to him the uses and limitations of fertilizers.

It is what no one can do for him, and it is certainly a great advance over the plan of putting on half a ton or a ton of "fertilizer" or "superphosphate" per acre, regardless of anything but the cost per ton. This last plan, followed by many, is like prescribing half a pint of "medicine" per week for a patient, without naming either dose or drug.

2. Then the farmer should get, from a number of sources, quotations of such fertilizer chemicals as will serve his purpose, with definite guarantees of composition and clear understanding as to rebates in case the goods are not as guaranteed, and in the ways indicated in the preceding pages, calculate what he must pay for the quantities of nitrogen, phosphoric acid and potash that he has decided upon, delivered at his freight station.

3. The purchaser should then reckon what he must pay in cash for an amount of factory-mixed fertilizer that contains nearly the quantities of fertilizer ingredients which he has determined to apply per acre. This cost of the factory-mixed goods will usually be considerably larger than the cost of unmixed chemicals.

This difference in cost between the two is to be offset against the cost to him of possible pulverizing, mixing and bagging the chemicals, and he has lastly to determine which will probably be the cheaper method, all things considered.

EXPERIMENTS ON THE AVAILABILITY OF FERTILIZER-NITROGEN.

By S. W. Johnson, E. H. Jenkins and W. E. Britton.*

These experiments are a continuation of work done in previous years on the same subject, which is described in the Station Reports: 1885, pp. 115–132; 1886, pp. 80–89; 1893, pp. 218–237; 1894, pp. 73–112; 1895, pp. 99–116.

I. On the Availability of Organic and Nitric Nitrogen. Maize-Cultures in Coal Ashes and Peat. 1896.

Pots Nos. 1 to 150.

In 1894 and 1895 we studied the availability of nitrogen in certain nitrogenous materials by vegetation experiments with maize and oats, grown in pots of soil composed of a mixture of anthracite coal ashes with small amounts of peat and carbonate of lime, and supplied with relatively small quantities of nitrogen in various fertilizers. The mixture itself contained only traces of available nitrogen as had been proved by vegetation experiments, but with the added fertilizers it contained all the elements of plant food excepting nitrogen, in excess of the crop requirements.

The availability of nitrogen was measured by the quantity of this element which the crop took from each material tested.

The Apparatus and Method.

These have been described in our Report for 1894, p. 74, and in all points not specially noted in the following pages, the same apparatus and method were used in 1896.

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* These investigations were planned, and the results prepared for publication, by the Director and Vice-Director. The filling of the vegetation pots and the care of them during growth has been wholly in Mr. Britton's charge. The analyses of the fertilizers used and of the crops harvested, with the necessary computations, have been made by the station chemists, Messrs. Winton, Ogden and Mitchell.

SOIL AND FERTILIZERS.

For the experiments now to be described, were used the pots and their contents as left at the conclusion of the corresponding trials of 1895, after storage in a very dry cellar during the winter.

Just before planting, in the spring of 1896, the contents of each pot were emptied out. Such roots as had not decayed were pulverized and, together with the fertilizer chemicals, were thoroughly mixed with the soil, which was then filled into the pot again. The pots were provided with a tube for ventilation and water supply as described in the Report of 1894, p. 78, but the layer of fine gravel there mentioned was omitted.

Each pot received 0.25 gram of sodium chloride, 1 gram of magnesium carbonate, 8 grams of calcium carbonate, 5 grams of potassium phosphate and 1 gram of potassium sulphate.

The potassium phosphate contained 52.1 per cent. of potash and 37.48 per cent. of phosphoric acid. The potassium sulphate contained 53.79 per cent. of potash.

The maximum maize crop in the experiments of 1895, pot 117, (Report 1895, p. 85), contained the quantities of ash ingredients or mineral matters named below. Here are also given the quantities of these ingredients added to each pot as fertilizers, in 1896.

	In largest crop of 1895.	In fertilizers, 1896.
Potash	2.96 grams.	3.14 grams.
Soda	.34 "	.14 "
Lime	.88 "	4.48 "
Magnesia	.49 "	.48 "
Chlorine	.56 "	.15 "
Sulphuric acid	.28 "	.46 "
Phosphoric acid	.31 "	1.87 "

The coal ashes themselves, as was proved by vegetation experiments, contained considerable quantities of available potash and phosphoric acid. The soil in each pot was impregnated with a watery infusion of rich garden soil.

The nitrogenous matters tested were in each case a part of the same stock from which last year's tests were made; the slight differences between the percentages of nitrogen found in 1895 and in 1896 being due to changes in water-content.

The nitrogenous materials were as follows :—

Nitrate of soda,	containing	16.15	per cent.	of nitrogen.
Dried Blood,	"	13.54	"	"
Castor Pomace, No. **4546**,	"	4.96	"	"
" **4545**,	"	4.73	"	"
Cotton Seed Meal,	"	8.30	"	"
Dry Ground Fish,	"	9.64	"	"
Ground Horn and Hoof,	"	15.33	"	"
Bone Tankage,	"	5.10	"	"
Linseed Meal,	"	6.41	"	"

These materials have been more fully described in the Report for 1895. All of them represent commercial articles bought for fertilizer purposes.

The preparations of leather, raw, steamed, roasted and dissolved, are described on page 109 of this Report.

All of the above materials were pulverized to pass circular holes $\frac{1}{50}$ inch in diameter.

The arrangement of the tests and the quantities of nitrogen used are shown in Table I.

Before planting, the pots received the maximum quantity of water which was to be supplied to them during the experiment, together with the soil-infusion already mentioned.

SEED AND PLANTING.

The seed was the Longfellow field maize, a flint variety, each of the selected kernels weighing between 0.40 and 0.44 gram.

The seed was placed in the germinating apparatus on April 18th, and the sprouted seed was planted from April 21st to 24th, in the following way :—

Two pounds of the moist soil were taken from each pot, three seedlings were placed on the smoothed surface of what remained, and the soil that had been removed was put back, thus covering the seeds to a depth of one and a half inches.

The young plants began to appear on April 27th, and all had come up by May 4th. One additional kernel was planted in pot 112, to fill a vacancy.

CARE DURING GROWTH.

After planting, the pots were removed to the summer vegetation house described in our Report for 1894, p. 76.

The water supply was kept between 80 and 60 per cent. of the water-holding capacity of the soil (see foot note, page 186).

On May 18th, all the plants in pots 13, 135 and 136 were noted as small and unthrifty. In pot 26 one plant was thrifty, the others were apparently dying. Pot 109 had two thrifty-looking plants and one of the same size as the others, but yellow and sickly. Pots 12 and 26 had each one unthrifty plant. At this date the largest plants were about one foot high.

On June 22d, 0.8 gram of nitrogen as nitrate of soda was added to pots 11 and 13, and on July 11th, this amount was again added to pot 13.

At harvest time one of the three plants in each of pots Nos. 7, 12, 14, 26, 109, and 117, was dead. Pot 111 had but one living plant.

Before harvest, staminate flowers appeared on plants in all the pots, but no ears had sufficiently developed to make it possible to take separate account of them.

HARVESTING.

The crop was harvested July 21st to 24th. Each stalk was cut close to the soil surface. The roots are not included in the "crop."

The following explanations are referred to by small numerals in their appropriate places in the table:

2. The pot received 0.8 gram at planting time, and 0.8 gram later.
3. The pot received 0.8 gram at planting time and the same quantity at each of two intervals during growth.
4. The water in the pot was kept between 80 and 60 per cent. of the water-holding capacity of the soil.
5. The water in the pot was kept between 70 and 50 per cent. of the water-holding capacity of the soil.
6. The water in the pot was kept between 60 and 40 per cent. of the water-holding capacity of the soil.
7. The water in the pot was kept between 80 and 40 per cent. of the water-holding capacity of the soil.

TABLE I.—VEGETATION EXPERIMENTS, IN COAL ASHES AND PEAT. 1896. AVAILABILITY OF NITROGEN TO MAIZE.

Number of Pot.	Nitrogen supplied— In form of—	Nitrogen supplied— Quantities of Nitrogen supplied. (Grams.)	Crops. Weights of air-dry Crops, exclusive of roots (grams).	Crops. Weights of Water-free Crops, exclusive of roots (grams).	Crop-Nitrogen. Percentages of Nitrogen in the air-dry Crops.	Crop-Nitrogen. Total Nitrogen of Crops, exclusive of roots (grams).
5	Horn and Hoof	.8	78.5	69.0	.47	.369
6	“ “	1.6	165.7	147.0	.45	.746
7	“ “	2.4	35.5	31.6	2.20	.781
8	“ “	3.2	60.4	56.0	1.88	1.136
9	Nitrate of Soda	.8	126.9	111.1	.38	.482
10	“ “	1.6	138.3	119.9	.68	.940
11	“ “	.8 + .8[2]	152.0	138.5	.65	.988
12	“ “	2.4	34.8	31.8	2.23	.776
13	“ “	.8 + .8 + .8[3]	32.8	30.5	2.35	.771
14	Dried Blood	.8[4]	52.0	45.5	.56	.291
15	“	1.6[4]	144.2	127.9	.47	.678
16	“	.8[5]	93.7	83.2	.39	.365
17	“	1.6[5]	145.0	128.5	.42	.609
18	“	.8[6]	96.7	84.2	.36	.348
19	“	1.6[6]	137.0	126.3	.48	.658
20	“	.8[7]	99.6	87.2	.38	.378
21	“	1.6[7]	157.9	137.8	.44	.695
23	“	1.6	145.6	128.4	.41	.597
24	“	2.4	127.0	111.8	.64	.813
25	“	2.4	168.3	154.6	.53	.892
26	“	3.2	34.6	31.9	1.87	.647
27	“	3.2	124.5	109.2	.89	1.108
102	Castor Pomace **4545**	.8	79.3	69.1	.44	.349
103	“ “ “	1.6	142.2	125.8	.42	.597
104	“ “ “	2.4	145.1	129.2	.59	.856
105	“ “ “	3.2	171.3	157.2	.88	1.507
106	Castor Pomace **4546**	.8	85.0	74.8	.39	.332
107	“ “ “	1 6	158.8	141.5	.43	.683
108	“ “ “	2.4	158.5	144.7	.51	.808
109	“ “ “	3.2	31.5	28.0	2.39	.753
110	Cotton Seed Meal	.8	76.6	67.3	.42	.322
111	“ “ “	1.6	10.0	9.0	2.40	.240
112	“ “ “	2.4	144.3	132.8	.57	.823
113	“ “ “	3.2	164.1	150.5	.51	.837
114	Dry Fish	.8	94.1	84.4	.39	.367
115	“	1.6	159.4	147.6	.39	.622
116	“	2.4	151.1	139.8	.52	.786
117	“	3.2	157.4	139.7	.55	.866
123	Tankage	.8	85.1	74.1	.35	.298
124	“	1.6	135.2	120.2	.37	.500
125	“	2.4	167.6	149.3	.43	.721
126	“	3.2	206.2	187.3	.54	1.113
127	Linseed Meal	.8	82.9	72.0	.41	.340
128	“ “	1.6	153.7	135.9	.38	.584
129	“ “	2.4	198.4	181.9	.48	.952
130	“ “	3.2	154.8	142.9	.64	.991
135	Raw Leather	.8	1.8	1.6	.71	.013
136	“ “	1.6	1.5	1.3	.49	.007
137	Dissolved Leather	.8	47.0	41.3	.58	.273
142	Steamed Leather	.8	26.2	23.1	.42	.110
143	“ “	1.6	43.7	40.0	.41	.179
144	“ “	2.4	63.9	59.0	.43	.275
145	“ “	3.2	59.9	54.7	.45	.270
146	Roasted Leather	.8	7.5	6.6	.47	.035
147	“ “	1.6	14.0	12.2	.45	.063

TABLE II.—VEGETATION EXPERIMENTS OF 1894, 1895 AND 1896, IN COAL ASHES AND PEAT. ONE CROP (MAIZE) IN 1894, TWO CROPS (OATS FOLLOWED BY MAIZE) IN 1895, ONE CROP (MAIZE) IN 1896.

AVAILABILITY OF NITROGEN.

Number of Pot.	Source of the Fertilizer-Nitrogen.	Crop raised.	Year.	Quantities of Fertilizer-Nitrogen (grams).	Quantities of Crop-Nitrogen (grams).	Crop-Nitrogen expressed in percentages of Fertilizer-Nitrogen.	Yearly Averages from Figures of preceding column.	Corrected yearly Averages, excluding Figures in brackets.	Corrected Averages for the three years.
5	Horn and Hoof	Maize.	1894	.8	.307	38.4	38.9	38.9	41.8
6	" "	"	"	1.6	.561	35.1			
7	" "	"	"	2.4	1.015	42.3			
8	" "	"	"	3.2	1.278	39.9			
5	" "	Oats and Maize.	1895	.8	.384	48.0	46.2	46.2	
6	" "	" "	"	1.6	.778	48.6			
7	" "	" "	"	2.4	1.064	44.3			
8	" "	" "	"	3.2	1.404	43.9			
5	" "	Maize.	1896	.8	.369	46.1	40.2	40.2	
6	" "	"	"	1.6	.746	46.6			
7	" "	"	"	2.4	.781	32.5			
8	" "	"	"	3.2	1.136	35.5			
9	Nitrate of Soda	Maize.	1894	.8	.384	48.0	54.6	50.7	63.8
10	" "	"	"	1.6	.867	54.2			
11	" "	"	"	.8+.8	.797	49.8			
12	" "	"	"	2.4	1.376	[57.3]			
13	" "	"	"	.8+.8+.8	1.531	[63.8]			
9	" "	Oats and Maize.	1895	.8	.658	82.2	82.2	80.5	
10	" "	" "	"	1.6	1.284	80.2			
11	" "	" "	"	.8+.8	1.265	79.1			
12	" "	" "	"	2.4	1.992	[83.0]			
13	" "	" "	"	.8+.8+.8	2.070	[86.3]			
9	" "	Maize.	1896	.8	.482	60.3	49.1	60.3	
10	" "	"	"	1.6	.940	58.8			
11	" "	"	"	.8+.8	.988	61.8			
12	" "	"	"	2.4	.776	[32.3]			
13	" "	"	"	.8+.8+.8	.771	[32.1]			
22	Dried Blood	Maize.	1894	.8	.334	[41.8]	40.1	39.8	42.9
23	" "	"	"	1.6	.604	37.7			
24	" "	"	"	2.4	.931	38.8			
25	" "	"	"	2.4	1.030	42.9			
26	" "	"	"	3.2	1.287	[40.2]			
27	" "	"	"	3.2	1.261	[39.4]			
22	" "	----	1895	--	----	----			
23	" "	Oats and Maize.	"	1.6	.897	56.0	45.9	52.7	
24	" "	" "	"	2.4	1.180	49.1			
25	" "	" "	"	2.4	1.289	53.1			
26	" "	" "	"	3.2	1.134	[35.4]			
27	" "	" "	"	3.2	1.147	[35.9]			
23	" "	Maize.	1896	1.6	.597	37.3	32.6	36.1	
24	" "	"	"	2.4	.813	33.9			
25	" "	"	"	2.4	.892	37.2			
26	" "	"	"	3.2	.647	[20.2]			
27	" "	"	"	3.2	1.108	[34.6]			

TABLE II.—VEGETATION EXPERIMENTS, ETC.—*Continued.*

AVAILABILITY OF NITROGEN.

Number of Pot.	Source of the Fertilizer-Nitrogen.	Crop raised.	Year.	Quantities of Fertilizer-Nitrogen (grams).	Quantities of Crop-Nitrogen (grams).	Crop-Nitrogen expressed in percentages of Fertilizer-Nitrogen.	Yearly Averages from Figures of preceding column.	Corrected yearly Averages, excluding Figures in brackets.	Corrected Averages for the three years.
102	Castor Pomace No. 4545	Maize.	1894	.8	.351	43.9	45.9	45.6	48.4
103	" " "	"	"	1.6	.680	42.5			
104	" " "	"	"	2.4	1.211	50.4			
105	" " "	"	"	3.2	1.499	[46.8]			
102	" " "	Oats and Maize.	1895	.8	.496	62.0	57.4	60.7	
103	" " "	" "	"	1.6	.968	60.5			
104	" " "	" "	"	2.4	1.432	59.7			
105	" " "	" "	"	3.2	1.519	[47.5]			
102	" " "	Maize.	1896	.8	.349	43.6	40.9	38.9	
103	" " "	"	"	1.6	.597	37.3			
104	" " "	"	"	2.4	.856	35.7			
105	" " "	"	"	3.2	1.507	[47.1]			
106	Castor Pomace No. 4546	Maize.	1894	.8	.315	39.4	36.6	36.8	45.1
107	" " "	"	"	1.6	.505	31.6			
108	" " "	"	"	2.4	.945	39.4			
109	" " "	"	"	3.2	1.148	[35.9]			
106	" " "	Oats and Maize.	1895	.8	.510	63.5	52.4	59.3	
107	" " "	" "	"	1.6	.931	58.2			
108	" " "	" "	"	2.4	1.348	56.2			
109	" " "	" "	"	3.2	1.010	[31.6]			
106	" " "	Maize.	1896	.8	.332	41.5	35.3	39.3	
107	" " "	"	"	1.6	.683	42.6			
108	" " "	"	"	2.4	.808	33.7			
109	" " "	"	"	3.2	.753	[23.2]			
110	Cotton Seed Meal -----	Maize.	1894	.8	.330	41.3	40.3	44.1	46.4
111	" " " -----	"	"	1.6	.589	[36.8]			
112	" " " -----	"	"	2.4	1.126	46.9			
113	" " " -----	"	"	3.2	1.157	[36.1]			
110	" " " -----	Oats and Maize.	1895	.8	.513	64.1	52.1	57.7	
111	" " " -----	" "	"	1.6	.927	[57.9]			
112	" " " -----	" "	"	2.4	1.232	51.3			
113	" " " -----	" "	"	3.2	1.118	[35.0]			
110	" " " -----	Maize.	1896	.8	.322	40.2	28.9	37.3	
111	" " " -----	"	"	1.6	.240	[15.0]			
112	" " " -----	"	"	2.4	.823	34.3			
113	" " " -----	"	"	3.2	.837	[26.1]			
114	Dry Fish ------------	Maize.	1894	.8	.297	37.1	35.5	35.2	44.1
115	" ------------	"	"	1.6	.531	33.2			
116	" ------------	"	"	2.4	.929	[38.7]			
117	" ------------	"	"	3.2	1.062	[33.2]			
114	" ------------	Oats and Maize.	1895	.8	.423	52.9	44.0	54.8	
115	" ------------	" "	"	1.6	.905	56.6			
116	" ------------	" "	"	2.4	.861	[35.8]			
117	" ------------	" "	"	3.2	.988	[30.9]			
114	" ------------	Maize.	1896	.8	.367	45.9	36.2	42.4	
115	" ------------	"	"	1.6	.622	38.9			
116	" ------------	"	"	2.4	.786	[32.8]			
117	" ------------	"	"	3.2	.866	[27.1]			

TABLE II.—VEGETATION EXPERIMENTS, ETC.—*Concluded.*

AVAILABILITY OF NITROGEN.

Number of Pot.	Source of the Fertilizer-Nitrogen.	Crop raised.	Year.	Quantities of Fertilizer-Nitrogen (grams).	Quantities of Crop-Nitrogen (grams).	Crop-Nitrogen expressed in percentages of Fertilizer-Nitrogen.	Yearly Averages from Figures of preceding column.	Corrected yearly Averages, excluding Figures in brackets.	Corrected Averages for the three years.
123	Tankage	Maize.	1894	.8	.282	35.3	37.2	37.2	38.2
124	“	“	“	1.6	.590	36.9			
125	“	“	“	2.4	1.024	42.7			
126	“	“	“	3.2	1.077	33.7			
123	“	Oats and Maize.	1895	.8	.360	45.0	43.9	43 9	
124	“	“ “	“	1.6	.607	37.9			
125	“	“ “	“	2.4	1.102	45.9			
126	“	“ “	“	3.2	1.502	46.9			
123	“	Maize.	1896	.8	.298	37.3	33.4	33.4	
124	“	“	“	1.6	.500	31.3			
125	“	“	“	2.4	.721	30.0			
126	“	“	“	3.2	1.113	34.8			
127	Linseed Meal	Maize.	1894	.8	.330	41.2	35.2	37.5	44.6
128	“ “	“	“	1.6	.635	39.7			
129	“ “	“	“	2.4	.755	31.5			
130	“ “	“	“	3.2	.909	[28.4]			
127	“ “	Oats and Maize.	1895	.8	.439	54.9	50.1	56.8	
128	“ “	“ “	“	1.6	.987	61.7			
129	“ “	“ “	“	2.4	1.290	53.8			
130	“ “	“ “	“	3.2	.934	[29.9]			
127	“ “	Maize.	1896	.8	.340	42.5	37.4	39.6	
128	“ “	“	“	1.6	.584	36.5			
129	“ “	“	“	2.4	.952	39.7			
130	“ “	“	“	3.2	.991	[30.9]			
135	Raw Leather	Maize.	1894	.8	.014	1.8	1.1	1 1	1.2
136	“ “	“	“	1.6	.009	.5			
135	“ “	Oats and Maize.	1895	.8	.020	2.5	1.6	1.6	
136	“ “	“ “	“	1.6	.011	.7			
135	“ “	Maize.	1896	.8	.013	1.6	1.0	1.0	
136	“ “	“	“	1.6	.007	.4			
137	Dissolved Leather	Maize.	1894	.8	.308	38.5	38.5	38.5	40.8
137	“ “	Oats and Maize.	1895	.8	.408	51.0	51.0	51 0	
137	“ “	Maize.	1896	.8	.273	32.9	32.9	32 9	
142	Steamed Leather	Maize.	1894	.8	.047	5.9	4.1	4.1	8.0
143	“ “	“	“	1.6	.053	3.3			
144	“ “	“	“	2.4	.088	3.7			
145	“ “	“	“	3.2	.116	3.6			
142	“ “	Oats and Maize	1895	.8	.081	10.1	8.8	8.8	
143	“ “	“ “	“	1.6	.136	8.5			
144	“ “	“ “	“	2.4	.205	8.5			
145	“ “	“ “	“	3.2	.267	8.3			
142	“ “	Maize.	1896	.8	.110	13.8	11.2	11.2	
143	“ “	“	“	1.6	.179	11.2			
144	“ “	“	“	2.4	.275	11.4			
145	“ “	“	“	3.2	.270	8.4			
146	Roasted Leather	Maize.	1894	.8	.040	5.0	4.7	4.7	5.7
147	“ “	“	“	1.6	.071	4.4			
146	“ “	Oats and Maize.	1895	.8	.062	7.8	8.2	8.2	
147	“ “	“ “	“	1.6	.135	8.5			
146	“ “	Maize.	1896	.8	.035	4.4	4.2	4.2	
147	“ “	“	“	1.6	.063	3.9			

DISCUSSION OF TABLES I AND II.

THE WATER SUPPLY.

In pots 14 and 15, Table I, the water in the soil was maintained between 80 and 60 per cent. of the water-holding capacity of the soil;* in pots 16 and 17 between 70 and 50 per cent.; in pots 18 and 19 between 60 and 40 per cent., and in pots 20 and 21 between 80 and 40 per cent.

In the other pots, the water-supply was maintained between 80 and 60 per cent., but was to be changed at any time, according to the indications of pots 14 to 21.

There was no apparent difference in the development of the crops in pots 14 to 21. The results given in Table I show, however, that the largest assimilation of nitrogen took place in pots 20 and 21, whose water-supply was maintained between the limits of 80 and 40 per cent. of the water-holding capacity of the soil. The assimilation of nitrogen was nearly ten per cent. larger in pots 20 and 21 than in pots 14 and 15.

AVAILABILITY OF THE FERTILIZER-NITROGEN.

The weight of dry matter in the crops is not a measure of the availability of fertilizer-nitrogen. This is true of tests in the field as well as of those in pots. Wherever the conditions of growth are unbalanced, the individual plants are likely to vary greatly in composition; some producing relatively little vegetable matter having a high percentage of nitrogen; others producing much, with a low content of nitrogen. In the experiments under discussion, one at least of the factors of growth, the nitrogen supply, was necessarily unfavorable to full crop production, for, in order to compare the relative effect of different forms of nitrogen, they must be used in quantities not sufficient to meet the requirements of a maximum crop.

In consequence, and possibly because of other unfavorable conditions—limited size of pots, crowding of plants, etc.—the crops in this series of tests vary widely in their percentage of nitrogen.

To illustrate:—as shown in Table I, the soils of pots 5, 6, 7 and

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* The quantity of water which the perfectly saturated soil in a vegetation pot retains, measures the "water-holding capacity" of this soil. In these experiments this quantity of water was 3892 grams or 8.58 pounds. 80 per cent. of this is 3113 grams, or 6.86 pounds.

8 received 0.8, 1.6, 2.4 and 3.2 grams of nitrogen respectively. The weights of dry matter harvested were 69, 147, 31.6 and 56.0 grams respectively, weights which give no clue whatever to the availability of the fertilizer-nitrogen.

The last column of the table, however, states the actual quantities of fertilizer-nitrogen taken from the soil by the several crops.

These quantities are 0.369, 0.746, 0.781 and 1.136 grams.* From them we reckon that in the four tests, 46.1, 46.6, 32.5, and 35.5 per cent. respectively of the fertilizer-nitrogen were taken up by the plants.

These figures give a basis for calculating the relative availability of the several forms of nitrogen.

We shall therefore consider only the quantities of nitrogen which the crops (exclusive of roots) took from the soil.

Table II gives a complete view of all the results obtained during the three years 1894, 1895 and 1896.

A considerable number of experiments made with Dried Blood as a source of nitrogen, to study the effect of increased or diminished water-supply, etc. are omitted from Table II because they are not strictly comparable with the others.

Certain figures in the table are inclosed in brackets and excluded from the general average. This has been done wherever it was evident, either during the growth of the crop, or on inspection of the weights of nitrogen harvested, that something had interfered with the proper development of the crop. The chief damage to the plants appears to have resulted from rapid decay of the organic matter of the fertilizers. This occurred where the larger quantities were used. It is probable that the roots were injured, and possibly a portion of the nitrogen of the decaying matter escaped in the free state, or otherwise became useless to the growing crop. But no such injury was observed where slowly available forms of nitrogen, as bone tankage or steamed leather, were employed. The experiments of three years have proved that, for the volume of soil which was used in these tests, 3.2 grams of nitrogen, in quickly decaying form, is more than can be safely

	Pot No. 5	Pot No. 6	Pot No. 7	Pot No. 8
* The Fertilizer-nitrogen ratios are as	10	20	30	40
Dry crop ratios are as	10	21	5	8
Crop-nitrogen ratios are as	10	20	21	31

employed and make probable that 2.4 grams is an excessive quantity.

In the column headed "Crop-Nitrogen expressed in per cent. of Fertilizer-Nitrogen" (Table II), we have a set of figures, obtained, in the first instance (pot 5), by the arithmetical proportion 0.8 : 100 : : 0.307 : 38.4, which signifies that of 100 parts of fertilizer-nitrogen, in this case supplied by horn and hoof, 38.4 parts have been taken into the crop which was harvested from that pot.

The "crop," be it remembered, does not include roots.

Now the crop-nitrogen expressed in per cent. of the fertilizer-nitrogen (which in this paper we shall call the "per cent. availability") is not the same for the three years.

For example, as is shown in Table II, the average per cent. availability of nitrogen in Horn and Hoof was 38.9 in 1894, 46.2 in 1895, and 40.2 in 1896. These differences are no doubt caused in part by the different amounts of heat and light which the plants received in these three years, and also by the fact that two crops, oats and maize, were grown in 1895, and but one crop, maize, in 1894 and also in 1896.

Hence it would appear that, if the per cent. availability found in any single crop in one year is excluded from the average, the per cent. for each of the other years in the corresponding crop, should also be excluded in order to give the results of each season their true relative value in the average.

The column headed, "Yearly Averages from figures of preceding column," gives the average of *all* the figures from the preceding column, *including those inclosed in brackets.*

For reasons just mentioned, the figures in brackets are excluded from the "corrected averages," which are stated in the last two columns. It will be noticed that the greatest difference between the mean of the "yearly averages" and that of the "corrected yearly averages" occurs in case of Cotton Seed Meal, and amounts to 6.0 per cent. The other differences are for Dry Fish, 5.5; Linseed Meal 3.7; Castor Pomace No. **4546**, 3.7; Blood 3.4; Nitrate of Soda 1.8; Castor Pomace, No. **4545**, 0.3 per cent.; while there is no difference in case of horn and hoof, tankage and the preparations of leather.

It will be observed that in every case, except where the source of nitrogen was steamed leather, a larger proportion of the fertilizer-nitrogen was taken up in 1895 than in either 1894 or 1896. This is due to the fact that in 1895 two crops were grown in each pot, oats followed by maize. The oat crops in those pots receiving the larger quantities of nitrogenous matter were in some cases badly damaged by the rapid decay of the fertilizer, but the following maize crop took up available nitrogen which the damaged oat crops could not assimilate.

In Table III is given a summary, showing for the years 1894, 1895 and 1896, both the Percentage Availability of Nitrogen in the materials tested and also the Nitrogen Availability in Percentage of that of nitrate of soda.

The percentage availability of nitrogen in any material may be expected to differ in different years, for reasons which have been noted above.

It is not so obvious why the nitrogen-availability reckoned on nitrate should differ so considerably from year to year, as appears in some cases in the table.

TABLE III.—PERCENTAGE AVAILABILITY OF NITROGEN.

	To Maize, 1894.		To Oats & Maize, 1895.		To Maize, 1896.	
	Percentage Availability of Nitrogen.	Availability in Percentage of that of Nitrate.	Percentage Availability of Nitrogen.	Availability in Percentage of that of Nitrate.	Percentage Availability of Nitrogen.	Availability in Percentage of that of Nitrate.
Horn and Hoof	38.9	76.7	46.2	57.4	40.2	66.6
Nitrate of Soda	50.7	100.0	80.5	100.0	60.3	100.0
Dried Blood	39.8	78.5	52.7	65.5	36.1	59.9
Castor Pomace, No. **4545**	45.6	89.9	60.7	75.4	38.9	64.5
Castor Pomace, No. **4546**	36.8	72.6	59.3	73.6	39.3	65.1
Cotton Seed Meal	44.1	86.9	57.7	71.7	37.3	61.8
Dry Fish	35.2	69.4	54.8	68.0	42.4	70.3
Tankage	37.2	73.3	43.9	54.5	33.4	55.4
Linseed Meal	37.5	73.9	56.8	70.5	39.6	65.6
Raw Leather	1.1	2.1	1.6	1.9	1.0	1.6
Dissolved Leather	38.5	75.9	51.0	63.4	32.9	54.5
Steamed Leather	4.1	8.1	8.8	10.9	11.2	18.5
Roasted Leather	4.7	9.2	8.2	10.2	4.2	7.0

In Table IV is given the nitrogen-availability reckoned on nitrate, as found severally in the experiments of 1894, in the combined average of 1894 and of 1895, and lastly, in the average of all three years.

It is to be observed in Table IV, that while the results of 1894, in case of one-half of the fertilizers, differ by 6 to 10 per cent:

from those of 1894 and 1895 averaged together, the combined averages of 1894 and 1895 are but little altered by the results of 1896, as seen by comparing the last two columns.

Whether this increasing agreement is a consequence of the impregnation of the coal ashes and peat with microbes, or is accidental, can only be determined by further investigation.

TABLE IV.—NITROGEN-AVAILABILITY RECKONED ON NITRATE.

	Experiments of 1894.	Experiments of 1894 and 1895.	Experiments of 1894, 1895 and 1896.
Nitrate of Soda	100	100	100
Collier Castor Pomace, No. **4545**	90	83	77
Cotton Seed Meal	87	79	74
Red Seal Castor Pomace, No. **4546**	73	73	70
Linseed Meal	74	72	70
Dried Blood	79	72	68
Dry Fish	69	69	69
Dissolved Leather	76	70	65
Horn and Hoof	77	67	67
Tankage	73	64	61
Steamed Leather	8	10	13
Roasted Leather	9	10	9
Raw Leather	2	2	2

The availability of the nitrogen of roasted, steamed and raw leather, while not alike in the three years, is so much lower than that of any other materials tested, as to demonstrate that the nitrogen in them is comparatively inert and of little effect unless applied in large quantities.

The experiments also demonstrate that leather may be dissolved in oil of vitriol so as to make its nitrogen nearly as available to the maize and oat crops as that of tankage. Samples of roasted leather, steamed leather and dissolved leather were prepared each year from a common stock of raw leather, and slight differences in their preparation might explain the differences of availability observed in different years.

Of the nine materials tested, other than leather, tankage certainly has the lowest nitrogen-availability, ranking 7th, 9th and 9th in the three years tests.

Regarding the nitrogen-availability of the other organic matters the experiments are not altogether conclusive.

II. A COMPARISON OF NITROGEN-AVAILABILITY DETERMINED BY VEGETATION EXPERIMENTS AND NITROGEN-SOLUBILITY IN CHEMICAL REAGENTS, 1896.

POTS 246–277.

FORMER INVESTIGATIONS.

The solubility in pepsin-hydrochloric acid [Artificial Digestion] of different forms of organic nitrogen was first proposed by Stutzer and Klinkenberg as a measure of the availability of such nitrogen to plants.—*Jour. für Landw.*, 1882, p. 363.

C. U. Shepard and P. Chazal applied artificial digestion to forms of nitrogen used in this country, and it was more fully studied by this Station. The conclusions drawn were as follows (Report 1885, p. 130):

"1. The nitrogen of dried blood, red and black (4 samples), cotton seed (4 samples), castor pomace and maize refuse (each one sample) was in every case soluble in pepsin solution, by 24 hours digestion, to the extent of 75 per cent. or more.

2. The nitrogen of fish (10 samples), dried animal matter (tankage, horse-meat, etc., 3 samples) and of bone (20 samples) was in every case soluble to the extent of over 52 per cent.

3. The nitrogen of leather, steamed or extracted by benzine, was in no case soluble to the extent of over 36 per cent. The nitrogen of horn shavings, horn dust, ground horn and hoof, bat guano, felt waste and wool waste was considerably less soluble than the nitrogen of leather.

4. This method divides all organic nitrogenous matters into two classes according to the digestibility of their nitrogen. In one class more than half of the nitrogen, in the other scarcely more than one-third is digestible. To the first class belong all whose nitrogen is known to be readily "available;" in the second class the most digestible are leathers variously manipulated which are known to be almost valueless as fertilizers. To some extent this method is, therefore, a measure of the agricultural value of nitrogen. How far it is a correct measure must be determined by vegetation experiments under accurately controlled conditions in which nitrogen is supplied in substances that have been tested by digestion experiments.

In the meantime the method has decided value because in many cases it will distinguish between available and inert nitrogen in mixed fertilizers."

At the same time the method of determining nitrogen-solubility by putrefactive fermentation as proposed by Morgen, *Landw. Versuchs.-St.* 1880, p. 50, was also examined, and the conclusion was reached that "this test of putrefaction draws the same line between the two classes that was drawn by the pepsin digestion."

In the Report of this Station for 1893, p. 218, the methods just named were further studied and compared, and the same nitrogenous matters which had been tested by these methods were also tested by vegetation experiments in which the comparative availability of their nitrogen to maize was determined by cultures in soil containing the several fertilizers.

The conclusion of this investigation was: "It is evident that the tedious vegetation-cultures are the only true test of the availability of organic nitrogen, while the pepsin-digestion may give useful indications, but cannot be depended on for decisive results."

INVESTIGATIONS OF 1896.

This work was done in coöperation with Mr. J. P. Street, of the New Jersey Station, Reporter on Nitrogen for the Association of Official Chemists, and Mr. R. J. Davidson of the Virginia Station.

Late in April last this Station received from Mr. Street five samples of nitrogenous superphosphates for investigation as to the availability of their nitrogen.

These superphosphates had the following composition:—

No.	4	5	6	7	8
Nitrogen in form of	Blood.	Tankage.	Horn and Hoof.	Raw Leather.	Commercial Fertilizer.*
Nitrogen	2.88	2.98	2.68	2.57	2.15
Total Phosphoric Acid	10.01	9.44	10.30	6.98	11.50
Available Phosphoric Acid	8.26	7.74	8.40	5.92	8.21
Potash soluble in water	7.86	7.86	7.86	7.86	6.04

The solubility of the nitrogen of these fertilizers in pepsin-hydrochloric acid, was determined by us and also the availability of the nitrogen to the maize crop.

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* Suspected of containing nitrogen in inferior form.

Solubility of Nitrogen in Pepsin Solution.

The method followed was essentially the same as that used in our experiments of previous years, and is as follows :—

Bring one gram of the material, which has been washed on a filter with cold water, into a 150^{cc} flask, and add 100^{cc} of pepsin-hydrochloric acid solution.* Place the flask, loosely corked, in a water-bath having a constant temperature of 40° C. Keep at this temperature for twenty-four hours, adding 2^{cc} of a ten-per cent. hydrochloric acid solution at the end of the 2d, 5th, 8th and 11th hours. Shake the mixture well on each addition of acid. At the end of the digestion transfer the contents of the flask to a filter, wash with 150 to 200^{cc} of cold water, and determine nitrogen in the residue by the Kjeldahl method.

The percentages of the total nitrogen of these fertilizers which dissolve by use of this method are given in the following table, together with the results obtained by Messrs. Street and Davidson, which have been kindly communicated by Mr. Street.

PERCENTAGE SOLUBILITY OF NITROGEN IN PEPSIN-HYDROCHLORIC ACID.

Sample No.	4	5	6	7	8
Form of nitrogen.	Blood.	Tankage.	Horn and Hoof.	Raw Leather.	Unknown.
Per cent. solubility determined by					
Street	94.2	77.3	56.6	18.7	51.7
Davidson	88.4	73.9	41.5†	13.8	50.5
This Station	94.8	78.5	56.3	17.5	58.1
Average	92.5	76.6	56.5	16.7	53.4

Availability of Nitrogen to the Maize Crop.

This we undertook to determine by vegetation experiments.

The pots used were of galvanized sheet iron, 7 inches in diameter and 9 inches deep. They have been described in the Report of this Station for 1893, p. 231.

The soil used in each pot was six pounds of a mixture of 97 parts by weight of air-dry anthracite coal ashes and 3 parts of air-dry peat (described in the Report for 1893, p. 231). To this were added in each case 5 grams of calcium carbonate, and the quantity of the fertilizer to be tested, which is given in the following table. After the whole was thoroughly mixed it was filled into the pot and gently packed.

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* Made by dissolving 5 grams of Parke & Davis' pulverized pepsin (guaranteed to dissolve 2,000 times its weight of coagulated egg albumin) in 1,000^{cc} of two-tenths per cent. hydrochloric acid.

† Omitted from average.

As soon as the pots were filled they were watered, and during the whole experiment, by frequent weighing and watering, the amount of water was kept between 60 and 80 per cent. of the water-holding capacity of the soil.*

On June 2d three kernels of Longfellow maize were planted about 1¼ inches deep in each pot.

These pots stood in the vegetation house during the summer, and the crops were harvested on Sept. 1st and 2d.

No great difference in the development of the crops raised on fertilizers Nos. 4, 5, 6 or 8 was apparent during the season. Those grown with no added nitrogen, see Table V, and those grown with leather, were, of course, very small and backward in development.

The plants raised with fertilizers Nos. 4 and 5 averaged 43 and 47 inches in height respectively, flowered and bore a number of undeveloped ears at harvest time.

The plants grown with fertilizers Nos. 6 and 8 averaged 42 and 44 inches in height and were a little less fully developed than those before mentioned.

The plants grown with leather were about 26 inches high, those to which no nitrogen was given were 25 inches high. Both had some abortive tassels.

The results of this experiment appear in Table V. The eighth column of the table is "Nitrogen Increase," which is reckoned from the seventh column by subtracting from the weight of the crop-nitrogen, in each case, the nitrogen (0.059 grams) which was probably derived from soil and seed and not from the fertilizer, as is indicated in the crops from pots 273 to 276.

The last two columns show what part per hundred of the nitrogen in each fertilizer was actually taken up by the growing maize.

It appears that the per cent. availability of the five fertilizers, under the conditions of our experiment, was as follows:—

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* See foot-note, page 186.

TABLE V.—VEGETATION EXPERIMENTS, 1896, WITH NITROGENOUS SUPERPHOSPHATES. AVAILABILITY OF NITROGEN TO MAIZE.

Number of Pot.	Nitrogen supplied—		Crops harvested (exclusive of roots).				Nitrogen increase.	Nitrogen increase expressed in percentages of Fertilizer-Nitrogen.	
	In form of—	Quantities of Nitrogen supplied (grams).	Weights of air-dry Crops (grams).	Weights of Water-free Crops (grams).	Percentages of Nitrogen in air-dry Crops.	Total Nitrogen of Crop (grams).			
251	No. 4, Blood	.5	70.8	62.16	.40	.283	.224	44.8	46.5
252	" "	.5	83.7	72.98	.36	.301	.242	48.4	
253	" "	1.0	118.4	101.99	.43	.509	.450	45.0	
254	" "	1.0	111.6	95.34	.48	.536	.477	47.7	
255	No. 5, Tankage	.5	78.5	69.10	.35	.275	.216	43.2	44.8
256	" "	.5	93.3	80.91	.33	.308	.249	49.8	
257	" "	1.0	125.7	108.45	.43	.541	.482	48.2	
258	" "	1.0	101.7	88.94	.43	.437	.378	37.8	
259	" "	2.0	141.0	125.36	.77	1.086	1.027	51.3	
260	No. 6, Horn and Hoof	.5	76.1	66.22	.35	.266	.207	41.4	43.4
261	" " "	.5	75.0	66.03	.34	.255	.196	39.2	
262	" " "	1.0	117.8	102.18	.44	.518	.459	45.9	
263	" " "	1.0	112.7	96.74	.47	.530	.471	47.1	
264	" " "	2.0	132.1	117.93	.66	.872	.813	40.6	
265	No. 7, Leather	.5	20.8	18.07	.36	.074	.015	3.0	3.4
266	" "	.5	21.7	18.91	.34	.074	.015	3.0	
267	" "	1.0	24.3	21.51	.41	.100	.041	4.1	
268	" "	1.0	26.0	22.54	.36	.094	.035	3.5	
269	No. 8, Suspected Commercial Fertilizer	.5	58.2	51.59	.36	.210	.151	30.2	29.8
270		.5	60.1	53.19	.33	.198	.139	27.8	
271	" " "	1.0	95.3	82.28	.36	.343	.284	28.4	
272	" " "	1.0	96.4	82.90	.40	.386	.327	32.7	
273	No Nitrogen added	----	16.6	14.51	.32	.053	----	----	
274	" " "	----	18.4	16.00	.34	.063	----	----	
275	" " "	----	17.2	15.00	.35	.060	----	----	
276	" " "	----	16.2	14.21	.38	.062	----	----	

	Per cent. Availability.
No. 4, Blood	46.5
No. 5, Tankage	44.8
No. 6, Horn and Hoof	43.4
No. 7, Leather	3.4
No. 8, Source of nitrogen unknown	29.8

These figures represent the comparative fertilizing value of the nitrogen in these several forms to the maize crop.

It would have been very desirable to increase the number of tests so as to duplicate the results, but the work was first proposed after other experiments had been begun that took up most of the available space in our summer vegetation house.

Comparison of Results of Maize Cultures with those of Laboratory Methods.

On page 193 have already been given the results of digestion with pepsin-hydrochloric acid.

Mr. Street has also tried the treatment with potassium permanganate, as indicated in Bull. 47, Division of Chemistry, U. S. Dept. Agriculture, p. 115.

In the following statement by Mr. S. H. T. Hayes, the results obtained by Messrs. Street, Davidson and ourselves are presented, reduced to a common basis for comparison.

The per cent. availability of nitrogen as determined by maize cultures in preparation No. 4, was in round numbers 47.

Its per cent. digestibility in pepsin-solution, as has been stated on page 193, is 93.

If now we call its per cent. digestibility 47, to agree with the per cent. availability, and reduce the other figures for pepsin digestibility in the same ratio, we have a set of numbers which show how the relative solubility and digestibility compare with relative availability, as fixed by maize cultures.

	Availability by Maize Cultures.	Digestibility in Pepsin-hydrochloric Acid.	Solubility in Potassium permanganate solution.	
			Acid.	Alkaline.
No. 4, Blood	47	47	47	47
No 5, Tankage	45	39	45	43
No. 6. Horn and Hoof	43	28	42	52
No. 7, Leather	3	8	14	25
No. 8, Source of nitrogen unknown	30	27	34	33

In these cases the treatment with an acid solution of potassium permanganate has given the closest approximation to the results of maize cultures. The method of treatment with permanganate is thus described by Mr. Street :

Weigh one gram of material into a 500^{cc} flask and add 100^{cc} of permanganate solution. Connect with distilling apparatus and digest for one hour over a low flame without boiling and then distil for one hour. Titrate the distilled ammonia in the usual manner. The alkaline permanganate solution is made by dissolving 16 grams of potassium permanganate and 200 grams of potassium hydrate in one liter of water. The acid solution was made by dissolving 16 grams of permanganate in one liter of ten per cent. sulphuric acid. When the acid solution is used it is necessary after the preliminary digestion to add sufficient alkali, about 50^{cc} of strong sodium hydrate, to liberate the ammonia.

We believe these chemical methods are of very great value in the examination of mixed fertilizers, as ready tests of the presence of inferior forms of nitrogen. At present, the actual agricultural value of a form of nitrogen cannot, however, be fixed without vegetation experiments.

III. On the Availability of Nitrogen in Bone of Different Degrees of Fineness. 1896.

Pots Nos. 277 to 298.

Preliminary Experiment with Oats.

Pots.

The pots used in these cultures were of stout galvanized iron, $9\frac{3}{4}$ inches in diameter and 20 inches long, open at both ends. To avoid rusting they were painted with asphalt.

These pots were sunk in the soil of a lawn to within two inches of their upper edges, and were disposed in rows $3\frac{1}{2}$ feet apart, the distance between pots in the same row being 3 feet, measuring in both cases from center to center. The rows were so arranged as to form a quincunx pattern, thus:

```
o       o       o       o
    o       o       o
o       o       o       o
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Soil and Fertilizers.

The soil was taken in October, 1895, from the Station grounds, under turf which had not been broken up for at least fourteen years, nor received either manure or chemicals for nine years.

The soil was thoroughly mixed, sifted through a screen with four meshes to the inch, and then filled into the 48 pots, which were allowed to stand over winter, uncovered, that the soil might settle naturally under the action of frost and water.

In April, 1896, the soil of each pot received $6\frac{1}{2}$ grams of an acid phosphate containing 11.69 per cent. of water-soluble, 2.59 of citrate-soluble and 1.13 per cent. of acid-soluble phosphoric acid.

There were also added 10 grams of precipitated calcium carbonate and 5 grams of a mixture of sulphate of potash, double sulphate of potash and magnesia, and muriate of potash, which contained 47.38 per cent. of potash.

These fertilizers were in each case thoroughly mixed with 20 pounds of the moist soil (which represented a depth of six inches), taken from the pot for the purpose, and then carefully replaced. The soil of each pot was known to be quite deficient in available nitrogen, but was believed to contain all other ingredients of plant food in comparative abundance.

Planting and Harvesting.

Fifteen selected seed oats, germinated in the seed-testing apparatus, were placed on the surface of the soil in each pot and covered one inch deep with three pounds of the same kind of unfertilized soil which had been used in the first filling.

The planting was done on April 28th to April 30th, and plants had appeared in all the pots on May 5th.

The soil was watered from time to time during the growing season as appeared to be necessary.

The oats grew well and were harvested on July 3d, at which time the plants were ripening and the lower leaves withering, the seeds being in most cases just past the milk stage. The soil was loosened, the roots were taken up as completely as possible and the adhering soil carefully washed off. The crops, including the roots, were air-dried, weighed and their nitrogen was determined.

The oat crops were designed to deplete the soil of its available nitrogen and incidentally to show what accordance might be attained in duplicate experiments made under the conditions here existing.

The results are given in Table VI.

In 27 out of the 48 pots one or more plants remained undeveloped or died, and in only six was there any increase in the number of stalks by tillering.

In no case was the average height of the crop more than 27 inches. These facts indicate the poverty of the soil in available nitrogen.

The nitrogen determinations show that the percentage of nitrogen found in the crops was fairly uniform with exception of Nos. 313 and 324. The average percentage, excluding these, is 0.76, and the widest range is from 0.65 to 0.90 per cent.

TABLE VI. PRELIMINARY OAT CULTURES.

Number of Pot.	Development of the Oat Crops.			Air-dry weights (grams).	Percentages of Nitrogen in air-dry Crops.	Total Nitrogen (grams).
	Number of stalks.	Average height (inches).	Number of stalks headed.			
277	15	24	15	21.6	.73	.158
278	14	22	14	18.0	.71	.128
279	15	22	15	20.0	.75	.150
280	9	21	8	18.7	.75	.140
281	11	26	8	21.8	.75	.163
282	15	24	15	23.4	.73	.171
283	14	21	14	17.9	.67	.120
284	14	23	14	22.5	.68	.153
285	15	22	14	26.7	.73	.195
286	11	20	3	19.0	.90	.171
287	12	22	9	22.2	.81	.180
288	13	23	12	22.6	.76	.172
289	14	21	14	19.2	.75	.144
290	15	21	15	19.8	.73	.145
291	13	20	10	14.9	.81	.121
292	12	21	12	15.9	.81	.129
293	13	22	13	17.5	.75	.131
294	11	23	8	17.9	.83	.149
295	15	21	15	21.7	.76	.165
296	14	22	14	18.7	.73	.137
297	15	21	15	19.9	.71	.141
298	15	20	14	20.7	.75	.155
299	10	23	10	19.5	.77	.150
300	14	21	14	21.4	.71	.152
301	15	21	15	21.4	.69	.148
302	15	24	15	26.6	.65	.173
303	15	22	14	23.4	.76	.178
304	12	26	9	28.2	.78	[.220]
305	15	19	6	21.7	.87	.189
306	14	21	13	21.7	.78	.169
307	16	21	14	24.7	.81	.200
308	15	23	15	21.9	.73	.160
309	14	21	13	20.4	.80	.163
310	12	24	6	19.1	.88	.168
311	16	23	16	25.7	.72	.185
312	14	22	14	23.1	.77	.178
313	10	18	6	11.1	1.46	[.162]
314	14	24	14	30.4	.76	[.231]
315	15	21	15	21.9	.78	.171
316	12	21	9	14.5	.85	.123
317	13	21	13	22.3	.73	.163
318	14	21	14	32.5	.71	[.231]
319	15	21	15	22.5	.78	.176
320	17	27	17	50.9	.68	[.346]
321	14	24	14	24.2	.71	.172
322	32	24	19	84.0	.74	[.621]
323	16	22	6	26.8	.77	.206
324	17	20	1	20.4	1.87	[.381]

Nos. 313 and 324 contained an excessive percentage of nitrogen, associated in 324 with high nitrogen assimilation, but in 313 with half the average yield of vegetable matter.

The yield of air-dry matter and of nitrogen in six crops, 304, 314, 318, 320, 322 and 324, is very much larger than in any others. A probable explanation of this is found in the following facts.

After planting, and before the plants appeared, it was noticed that birds sometimes perched on the edges of the pots, and their droppings were found in some cases on the soil surface within. These were removed as promptly and thoroughly as possible and close watch was kept during the day until the plants fully occupied the pots.

In the pots named, however, it is probable that droppings left on them during a shower, or when the surface soil was quite damp, were partly carried into the soil by moisture, before they were discovered and removed, thus adding materially to the available nitrogen within the soil.

Excluding the crops mentioned, the average quantity of nitrogen taken from the soil was 0.160 gram. The greatest range from this mean was 0.040 below and 0.046 above. In twenty-four crops the nitrogen was within 10 per cent. of the mean.

It would not be possible to determine any very fine differences between the availability of different forms of nitrogen, in experiments where the crop-nitrogen in duplicate tests varies as much as was here observed. But the agreement is close enough to admit of determining any considerable differences, and it may be assumed that—with the exceptions above noted—*after the oat crops were harvested*, the amounts of available nitrogen in all the pots were quite small and fairly uniform.

MAIZE CULTURES. AVAILABILITY OF BONE-NITROGEN.

Immediately after the oats were harvested, additional fertilizers were mixed with the soil in the way already described, and maize was planted.

From a sample of ground raw knuckle bone, such as is used for the manufacture of case-knife handles, five grades of bone were prepared.

DESCRIPTION OF GRADES OF BONE USED IN THE EXPERIMENT.

Grade				
A,	passes bolting cloth, holes $\frac{1}{150}$ in. diameter,*	contains	3.38	p. ct. nitrogen.
B,	" circular holes between $\frac{1}{50}$ and $\frac{1}{150}$ in. diameter	"	3.90	" "
C,	" " " " $\frac{1}{25}$ " $\frac{1}{50}$ "	"	4.07	" "
D,	" " " " $\frac{1}{12}$ " $\frac{1}{25}$ "	"	4.05	" "
E,	" " " " $\frac{1}{6}$ " $\frac{1}{12}$ "	"	4.08	" "

* The mesh is 0.16^{mm} wide in the clear. The holes are not circular but rather octagonal in outline.

To the soil of each pot were added 16 grams of cotton hull ashes, containing 26.31 per cent. of potash and 10.47 per cent. of phosphoric acid, with the quantities of nitrate, bone or cotton seed meal given in Table VII, page 202.

Maize was planted on July 16th, 4 kernels in each pot, and was harvested late in September. At harvest time plants in all the pots bore staminate, some also pistillate flowers, but no ears had formed.

The arrangement of the experiment and the results are shown in Table VII.

In order to ascertain whether in all cases there had been surplus phosphoric acid and potash in the soil, these were determined in both the oat and maize crops from pots 288 and 314. From the data already given the quantities of soluble potash and phosphoric acid added to the soil in the fertilizers, exclusive of that contained in the nitrogenous manures, is readily determined. The results are as follows:—

PHOSPHORIC ACID AND POTASH IN FERTILIZERS AND CROPS.

	Oats.		Maize.		
	Added in fertilizer.	Removed in crop.	Added in fertilizer.	Removed in crop.	Left in soil from fertilizer.
		Pot No. 288.			
Phosphoric Acid	.928	.104	1.675	.308	2.191
Potash	2.369	.468	4.210	2.702	3.409
		Pot No. 314.			
Phosphoric Acid	.928	.155	1.675	.416	2.032
Potash	2.369	.547	4.210	2.500	3.532

As these crops are among the largest, it is clear that both phosphoric acid and potash were present in excess of crop requirements.

Soil-Nitrogen.

The first six maize crops (Table VII) were intended to grow without any fertilizer-nitrogen. The crop No. 324 and the corresponding oat crop were very large, probably because of accidental bird droppings whose nitrogen was not wholly exhausted by the oat crop.

Excluding No. 324, it appears that the maize crop was able to get from the soil alone on the average 0.267 gram of nitrogen (the extremes are 0.221 and 0.287) and to produce 41.4 grams of dry matter (40.5–51.2).

TABLE VII. AVAILABILITY OF BONE-NITROGEN. MAIZE CULTURES.

No.	Nitrogen supplied—		Crop Statistics.								
	In form of—	Quantity of, in grams.	Average height of stalks. Inches.	Weights of air-dry Crops (grams).	Weights of Water-free Crops (grams).	Percentages of Nitrogen in air-dry Crops.	Total Nitrogen of Crops (grams).	Nitrogen Increase.	Percentage Availability of Nitrogen.	Average Availability.	Corrected Averages
277	None added------	--	18	40.0	37.6	.62	.248	----	----		
285	" ------	--	14	37.3	35.4	.71	.265	----	----		
301	" ------	--	15	42.5	40.0	.52	.221	----	----		
313	" ------	--	19	48.6	45.5	.65	.316	----	----		
324	" ------	--	19	67.2	62.7	.51	[.343]	----	---		
278	" ------	--	24	51.2	48.3	.56	.287	----	----		
290	Nitrate of Soda---	1.0	36	143.5	134.1	.56	.804	.537	53.7	57.7	57.2
287	" " ---	1.0	40	151.1	142.0	.61	.922	.655	65.5		
314	" " ---	2.0	40	208.4	196.6	.72	1.500	1.233	[61.7]		
312	" " ---	2.0	48	196.8	185.7	.70	1.378	1.111	55.6		
323	" " ---	3.0	42	176.7	167.3	1.09	1.926	1.659	55.3		
300	" " ---	3.0	46	173.5	163.9	1.12	1.943	1.676	55.9		
279	Cotton Seed Meal-	1.0	32	120.8	113.4	.47	.568	.301	30.1	28.4	28.9
291	" " " -	1.0	23	90.3	83.9	.53	.479	.212	21.2		
303	" " " -	2.0	38	153.0	146.0	.54	.826	.559	28.0		
286	" " " -	2.0	46	193.4	183.8	.46	.890	.623	31.2		
322	" " " -	3.0	29	124.2	117.2	.84	1.043	.776	[25.9]		
288	" " " -	3.0	52	237.0	223.8	.54	1.280	1.013	33.8		
280	Bone A ---------	1.0	18	66.7	62.9	.50	.334	.067	6.7	10.0	9.7
317	" ---------	1.0	17	51.3	48.0	.52	.267	----	----		
304	" ---------	2.0	23	90.8	84.9	.54	.490	.223	[11.2]		
310	" ---------	2.0	23	77.5	72.4	.54	.419	.152	7.6		
321	" ---------	3.0	45	143.5	135.5	.66	.947	.680	22.7		
305	" ---------	3.0	28	100.2	94.9	.61	.611	.344	11.5		
281	Bone B ---------	1.0	22	52.1	48.9	.54	.281	.014	1.4	3.4	3.0
293	" ---------	1.0	15	36.7	34.4	.66	.242	.075	7 5		
299	" ---------	2.0	16	53.0	49.9	.60	.318	.051	2.6		
309	" ---------	2.0	18	66.0	61.8	.50	.330	.063	3.2		
320	" ---------	3.0	21	75.4	70.6	.57	.430	.163	[5.4]		
283	" ---------	3.0	20	47.1	43.9	.58	.273	.006	.2		
282	Bone C ---------	1.0	19	50.3	47.2	.54	.272	.005	.5	4.2	4.2
294	" ---------	1.0	18	42.1	39.6	.56	.236	----	----		
297	" ---------	2.0	28	79.2	73.9	.57	.451	.184	9.2		
308	" ---------	2.0	24	57.0	52.9	.58	.331	.064	3.2		
319	" ---------	3.0	25	81.5	77.8	.56	.456	.189	6.3		
295	" ---------	3.0	24	67.5	63.1	.66	.446	.179	6.0		
284	Bone D ---------	1.0	16	33.2	31.0	.63	.209	----	----	2.3	1.9
302	" ---------	1.0	22	50.1	47.1	.64	.321	.054	5.4		
296	" ---------	2.0	24	58.0	54.5	.58	.336	.069	3.5		
307	" ---------	2.0	19	52.8	49.5	.52	.275	.008	.4		
318	" ---------	3.0	25	76.2	72.8	.52	.396	.129	[4.3]		
292	" ---------	3.0	17	46.2	43.3	.59	.273	.006	.2		
289	Bone E ---------	1.0	17	39.3	36.4	.56	.220	----	----	2.7	2.7
311	" ---------	1.0	23	56.1	52.2	.60	.337	.070	7.0		
306	" ---------	2.0	21	52.3	48.8	.53	.277	.010	.5		
315	" -------	2.0	25	69.3	64.6	.60	.416	.149	7.5		
316	" ---------	3.0	16	54.2	50.5	.52	.282	.015	.5		
298	" ---------	3.0	16	50.0	47.2	.56	.280	.013	.4		

Nitrate-Nitrogen.

The next six crops received fertilizer-nitrogen in form of nitrate of soda, and in three different amounts.

The weights of crop and crop-nitrogen were excessive in No. 314; the nitrogen-yield in the corresponding oat crop was also very large. This crop is therefore omitted from the average.

In the column of "Nitrogen Increase" are given figures obtained by subtracting from the total crop-nitrogen, the average quantity of nitrogen (0.267 gram) which the unfertilized soil itself yielded, as determined by the first six crops given in Table VII.

The nitrogen-increase is what may fairly be attributed to the nitrogen of the fertilizer rather than to that of the soil and seed.

The column "Per cent. availability" expresses the percentage of the fertilizer-nitrogen which was recovered in the crop.

Next follows the average of the six separate tests, and from the last column, "Corrected Averages," are excluded crops (like 314), which were affected by some known source of error.

It appears that the average availability of the nitrogen of nitrate of soda was 57.2 per cent. (53.7–65.5). That is, of every one hundred parts applied in the fertilizer, 57.2 parts were taken by the crop. It is quite clear too that the amount of nitrogen added was not in excess of the crop requirements.

Nitrogen of Cotton Seed Meal.

Of the maize crops raised with cotton seed meal, one, No. 322, followed a very large oat crop, but was much smaller than its duplicate. Whether it is excluded from the "corrected average" or not, makes practically no difference in the result, for the "average availability" is 28.4 and the "corrected average" 28.9.

In these experiments the nitrogen-availability of cotton seed meal was about half that of nitrate of soda.

The figures given on page 190 show that the average availability of nitrogen in form of cotton seed meal in three years' experiments in coal ashes and peat, has been nearly three-quarters (74 per cent.) of that of nitrate-nitrogen.

A word as to the discrepancy between these results. The conditions which affect that decay of organic nitrogenous matters in the soil, which necessarily precedes the taking up of their nitrogen by plants (chief among which are aeration of the soil, moisture, warmth and the activity of microbe life in the soil), are not and cannot be made alike year after year. In one year they may all be very favorable, in which case the nitrogen of cotton seed meal, for example, will have a higher availability as compared with that of nitrate; in the next year the reverse may be true. Thus in 1894 the per cent. availability of nitrogen of the same cotton seed meal was 87, in 1895, 72, in 1896, 62 per cent. of that of nitrate-nitrogen.

Nitrogen of Bone.

The tests made with the finest bone, grade A, show great irregularities, which cannot be explained. Crop No. 304 followed an oat crop whose nitrogen content was excessively large. The yield of nitrogen in the maize crop is, however, about the average of the others, so that whether this result is excluded from the corrected average or not, makes no difference in the result.

The percentages representing availability of nitrogen in four of the crops are 6.7, 7.6, 11.2, and 11.5. But in another crop we have a relative availability of 22.7, and in another no more nitrogen was taken by the crop than belonged to crops which received no fertilizer-nitrogen whatever. The tests with coarser grades of bone show less wide range of results. The figures obtained are as follows:

PER CENT. AVAILABILITY OF BONE NITROGEN.

			Average per cent. availability of nitrogen.	Range of results.
Grade	A.	Passed fine bolting cloth	9.7	22.7 — 0
"	B.	Smaller than $\frac{1}{50}$ inch	3.0	7.5 — .2
"	C.	$\frac{1}{50}$ to $\frac{1}{25}$ inch	4.2	9.2 — 0
"	D.	$\frac{1}{25}$ to $\frac{1}{12}$ "	1.9	5.4 — 0
"	E.	$\frac{1}{12}$ to $\frac{1}{6}$ "	2.7	7.5 — 0

These experiments of a single year have shown that, under the conditions specified, fine bone flour prepared from the hardest bones (selected raw knuckle bones free from all tendon, cartilage, etc.), was about one-third as efficient a source of nitrogen to the maize crop as cotton seed meal, and that the coarser grades of bone supplied but very little nitrogen to the growing crop.

When the crops which have been described were harvested, the pots were planted with winter rye. The experiments must be continued for several years in order to arrive at safe conclusions.

ON THE USE OF COMMERCIAL FERTILIZERS FOR FORCING-HOUSE CROPS.

By E. H. Jenkins and W. E. Britton.[*]

I. Experiments with Tomatoes, Season of 1895–1896.

This work is a continuation of that begun two years since and described in the Report of this Station for 1895, pp. 75 to 98.

The experiments now to be described were planned to test further the use of a mixture of coal ashes with a few per cent. of peat for forcing crops, to determine more closely the amount of nitric nitrogen which can be economically used in such a soil for growing tomatoes, and to study the effects of larger quantities of phosphoric acid than we had previously employed.

House, Benches and Plots.

The house and the arrangement of benches in it were the same as described on pp. 77 and 78 of the Report for 1895. The bench space in the house was divided by board partitions into 30 plots. These were nearly alike in shape and had the same depth (9 inches) and the same area (13.87 square feet).

Soil and Fertilizers.

Two kinds of soil were employed. One was a compost, such as is commonly used in forcing-houses, consisting of thick turf composted with one-third its bulk of stable manure and well worked over during the preceding summer.

The other soil, for each plot, consisted of 300 pounds of coal ashes mixed with 100 grams of pure calcium carbonate, nine pounds of moss peat, such as is sold in the cities for stable bedding, or with a like amount of meadow peat from a swamp near New Haven. Both ashes and peat were sifted through a wire screen having four meshes to the linear inch.[†]

The fertilizer chemicals designed for a plot were sprinkled on the mixture of ashes and peat, and the whole was carefully and repeatedly shovelled over to secure perfect mixture.

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[*] The general plan of this study, the arrangement of its details and the preparation of this paper are our joint labor. The horticultural work has been done wholly by Mr. Britton. The chemical analyses have been made by Messrs. Winton, Ogden and Mitchell.

[†] Note by S. W. Johnson—Our use of Peat as an ingredient of the "soil" employed for experimental cultures, is the result of my experience in an investigation "On the Effect of Alkaline Bodies in developing the Fertilizing Power of

The soil filled each plot to a depth of about eight inches. The kinds and quantities of fertilizers applied will be seen from subsequent tables.

The First Crop.

Plants.—Seeds of the Lorillard tomato were sown July 25th, potted August 20th into 2½ inch pots and shifted into 4 inch pots about the middle of September. Six of these plants, with the potting earth about them, were set in each of the forcing-house plots on Sept. 27th and 28th. The plants were trained to a single stem. All lateral shoots were pinched off as they appeared, dried and carefully saved for analysis, those from each plot separately.

Notes Regarding Growth.—During the period of growth, and ripening of the fruit, cloudy weather prevailed and the small yield was doubtless due to the lack of sunlight.

The plants, however, grew well from the beginning. Flowers were pollinated every second day throughout the fruiting season,

Peat," made in 1862 (briefly described in the writer's "Peat and its Uses as Fertilizer and Fuel," pp. 77–81; also in Storer's Agriculture, Vol. II, p. 19), in which it was found that maize plants rooted in peat, withstood great heat and occasional drouth without apparent injury.

A mixture of Coal Ashes and Peat was first used in our Vegetation Cultures, for studying the Availability of Nitrogen in Fertilizers, Report for 1893, p. 231. The coal ashes were either those of anthracite coal taken directly from the furnace of the large boiler that supplies steam heat to the Station buildings, or those of bituminous coal from the Whitney Lake Pumping House. These ashes contain some partially burned coal and considerable slag as well as pulverulent ash and clay.

The Peat was either a dark brown meadow "muck" from the Beaver Swamp meadow near New Haven, formed from grasses, sedges, etc., and rich in slowly available nitrogen, or the imported brown moss peat (Commercial Peat Moss) used as stable litter. The former is the cheaper and more convenient to pulverize. This Mixture is easily prepared in large quantities, is almost entirely sterile both as regards plant food and living organisms of all kinds; its texture and physical characters are more favorable to vegetation than those of quartz sand, usually employed, since it largely consists of mineral grains of very various dimensions intimately mixed together, and contains a small proportion of highly porous humus.

Its cheapness and the excellent results obtained with it, when duly enriched with plant food, have led us to employ it as a substitute for the usual compost. It is free, not only from insects and worms, but probably also from the denitrifying organisms so abundant in dung, and perhaps in composts, which dissipate the nitrogen of nitrates.

beginning on October 19th. For this purpose a spoon is held directly under each flower and the upper part of the blossom gently tapped with a pencil or small stick. Pollen is thus shaken into the spoon and at the same time the stigma is coated with it, and as flower after flower is visited on many different plants, cross-fertilization is insured.

About the middle of October a fungus (*Cladosporium fulvum*), appeared as yellowish-brown patches on the under side of the leaves of a few plants, but was quickly checked and soon eradicated by treatment with ammoniacal copper carbonate.

On November 9th, there appeared on the leaves of a few plants the injury known as "blight," "sunscald" or "burn," which very seriously damaged some of the crops and in consequence impaired the value of the experiment. A description of this trouble is given on subsequent pages.

The surface soil of all the plots was stirred every few days to check evaporation. The plants were watered whenever it was thought necessary and the atmosphere was kept moist by wetting the walks daily between nine and ten o'clock in the morning. On sunny days the wetting was repeated in the afternoon to keep the temperature from running too high.

The temperature was maintained between 65° and 70° Fahr. at night and about 10° higher during the day.

Harvesting.—Every plant was numbered and each tomato when picked was weighed and credited to the plant which bore it. It was therefore possible to judge whether the several plants in each plot were of fairly uniform vigor and bearing capacity. The first ripe fruits were harvested November 27th from plot 35 (compost), and the next were picked December 2d from plots 12, 28 and 32 (coal ashes, etc.), and from plot 20 (compost). The yield of each plot, given in Tables I and II, pages 210, 211, will be discussed later. The experiment was concluded on January 21st, 1896.

The plants, including roots, so far as it was easily practicable to gather them, and immature fruit from each plot were dried, added to the dried trimmings of the plants saved during the growing season and the whole was weighed and analyzed to determine the content of nitrogen, phosphoric acid and potash.

Average samples of fruit from both the coal ashes and the compost were analyzed and from its composition and total weight were calculated the quantities of nitrogen, phosphoric acid and potash removed by the fruit.

The Second Crop.

Immediately after the first crop was harvested and analyzed additional fertilizers were applied to some of the plots and tomato plants were set as before on all the plots.

Seed for these plants—a portion of the same stock from which the plants in the previous experiment came—was sown on December 14th; the seedlings were put in two-inch pots on December 26th and repotted to four-inch pots on January 22d.

The plants, which had been kept in a cool house and were stocky and in excellent condition, were finally set in the plots on February 14th.

Notes on the Growth.—The plants started into thrifty growth as soon as transplanted to the benches, and, by March 16th, were about two and one-half feet high. Flowers of the third clusters were then opening and most of the second clusters had set fruit. Soon after, the plants on plots 9, 10, 11 and 12 were somewhat affected by "scald;" some blossoms fell before opening and others failed to set fruit.

The first blossom appeared February 20th, and the blossoms were pollinated every day or two thereafter. The first ripe fruit was harvested April 21st from the coal ashes, plots 11, 25 and 29, and from the compost, plot 23.

The temperature, care and management of the house were essentially the same as for the first crop.

About May 1st many green tomatoes began rotting at the blossom end, being attacked by the common fungus (*Macrosporium tomato*), and ripened prematurely. The fungus was found on tomatoes grown in both coal ashes and compost, but was less prevalent on the south bench, where the flowers and fruits were nearer the glass and perhaps more fully exposed to the sun. From this time on no bottom heat could be given the plants through the night. It is quite probable that this change of condition, which noticeably checked the growth, favored the development of the fungus just referred to.

The yield, though larger than that of the first crop, on account of the increased amount of sunlight, was unquestionably lessened somewhat in every plot by the ravages of the *Macrosporium*.

The plants stood in the plots till July 8th, when they were harvested. The harvesting and subsequent work were the same as described for the first crop.

DISCUSSION OF RESULTS.

A. The Nitrogen and Potash Series. Plots 9–14,* *Anthracite Coal Ashes and Moss Peat.*

The experiments of last year (see Report of 1895, p. 82) indicated that on plots of the size above named, 32.7 grams of nitrogen, with 8.1 grams of phosphoric acid and 29.3 grams of potash, gave a larger yield than smaller quantities of nitrogen with these amounts of phosphoric acid and potash.

We have now to inquire whether more nitrogen in the fertilizer increases the yield of the crop and whether a larger supply of phosphoric acid and potash may not render the nitrogen more effective.

As regards the question of Nitrogen Supply, Tables I, II, III and IV show the plan of experiments and their results.

The First Crop.

The largest amounts of nitrogen (32.7 grams), phosphoric acid (8.1 grams) and potash (29·3 grams), used last year, were employed this year for plot 9. While the quantities of potash and phosphoric acid in 10, 11 and 12 are alike (10 and 35 grams), the quantities of nitrogen are respectively 32.7, 40 and 47 grams.

Plot 13 had the same quantities of nitrogen and phosphoric acid as plot 11, but a larger amount of potash, to determine whether the nitrogen in plot 11 was limited in crop production, by lack of potash. Plots 14 and 12 had equal quantities of nitrogen and phosphoric acid, but the former had more potash than the latter.

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* The situation of these plots in the forcing-house is shown in plate I, page 231.

TABLE I.—TOMATO CULTURES IN ANTHRACITE COAL ASHES AND MOSS PEAT, SEPT. 1895 TO FEB. 1896.

NITROGEN AND POTASH SERIES.

Fertilizers.	Plot 9	Plot 10	Plot 11	Plot 12	Plot 13	Plot 14
Nitrate of Soda, grams	204.2	204.2	249.6	295.0	249.6	295.0
Nitrogen, "	32.7	32.7	40.0	47.0	40.0	47.0
Dissolved Bone Black "	47.9	58.8	58.8	58.8	58.8	58.8
Phosphoric Acid, "	8.1	10.0	10.0	10.0	10.0	10.0
Muriate of Potash, "	58.6	70.0	70.0	70.0	80.0	90.0
Potash, "	29.3	35.0	35.0	35.0	40.0	45.0
Yield.						
Total yield of fruits, grams*	2987	3847	4425	5274	7548	8042
" " vines, "	265	281	286	312	359	383
" " roots, "	6.1	9.7	8.1	10.3	24.1	23.6
Average yield of fruits per plant, grams	498	641	738	880	1258	1340
" " " " pounds	1.1	1.4	1.6	1.9	2.7	3.0
Average number of fruits per plant	9.7	13.1	12.6	16.3	18.0	18.0
Average weight of ripe fruits, grams	57.4	55.6	70.8	64.7	84.5	84.2
Percent. of perfect shaped fruits	27.0	33.0	33.0	25.0	28.0	30.0
Average yield of fruits per square foot of bench area, grams	215	277	319	380	544	580
Average yield of fruits per square foot of bench area, pounds	.5	.6	.7	.8	1.2	1.3

The value of this experiment, so far as the first crop is concerned, was greatly impaired by the "burn" or "scald" already alluded to; nevertheless, it appears likely from inspection of Table I, that nitrogen was relatively deficient, on the first two plots, 9 and 10, at least. The increased yield of plot 14 over 13 may be due to the larger supply either of nitrogen or of potash.

Table III shows that from 37 to 48 per cent. of the nitrogen, from 55 to 73 per cent. of the phosphoric acid and from 59 to 84 per cent. of the potash contained in the fertilizer and ashes, were taken up by the first crop.

The Second Crop.

Before planting the second crop, nitrate of soda, dissolved bone black and muriate of potash were added to the plots of this series in such quantities as to exactly replace the nitrogen, phosphoric acid and potash removed by the first crop, including roots.

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* Small unripe tomatoes remaining on the vines at time of harvest were weighed and recorded with the other fruits. The total and average yield and number of fruits per plant include these, but in computing the average weight of fruits, the number and weight of ripe fruits only were taken.

TABLE II.—TOMATO CULTURES IN ANTHRACITE COAL ASHES AND MOSS PEAT, FEBRUARY TO JULY, 1896.

NITROGEN AND POTASH SERIES.

Fertilizers.	Plot 9	Plot 10	Plot 11*	Plot 12†	Plot 13	Plot 14
Nitrate of Soda, grams	204.2	204.2	249.6	----	249.6	295.1
Cotton Seed Meal, "	----	----	----	§205.8	----	----
Nitrogen, "	32.7	32.7	40.0	47.0	40.0	47.0
Dissolved Bone Black, "	47.9	58.8	58.8	58.8	58.8	58.8
Phosphoric Acid, "	8.1	10.0	10.0	10.0	10.0	10.0
Muriate of Potash, "	58.6	70.0	70.0	70.0	80.0	90.0
Potash, "	29.3	35.0	35.0	35.0	40.0	45.0
Carbonate of Magnesia, "	24.0	----	----	----	----	----
Carbonate of Lime, "	100.0	----	----	----	----	----

Yield.

Yield.	Plot 9	Plot 10	Plot 11*	Plot 12†	Plot 13	Plot 14
Total yield of fruits, grams‡	7987	7682	10385	9507	10427	11467
" " vines, " " " roots, "	477	537	532	582	637	721
Average yield of fruits per plant, grams	1331	1280	1731	1584	1738	1911
" " " " pounds	2.9	2.8	3.8	3.5	3.8	4.2
Average number of fruits per plant	10	10	18	16	15	19
Average weight of ripe fruits, grams	138	125	120	118	124	116
Percent. of perfect shaped fruits	12	35	19	28	52	49
Average yield of fruits per square foot of bench area, grams	576	554	749	686	752	827
Average yield of fruits per square foot of bench area, pounds	1.3	1.2	1.7	1.5	1.7	1.8

Turning now to Table II, giving the results of the second experiment, it is to be noted that the plants on plots 13 and 14 were healthy throughout the season, those on plot 12 were slightly affected with scald, those on 9, 10 and 11 were considerably injured, and that to 9, 11 and 12 some applications were made which render the results on those plots not strictly comparable with the others.

The much larger yield from each plot in the second experiment, Table II, in which the amount of plant food used was the same as in the first experiment, stands connected with the greater supply of sunshine.

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* Also added 18 lbs. moss peat.

† Also added a handful of garden soil.

‡ See note to Table I.

§ This amount of cotton seed replaces the nitrogen removed in the first crop.

TABLES III AND IV.—TOMATO CULTURES IN ANTHRACITE COAL ASHES AND MOSS PEAT.

TABLE III.—SUPPLY AND REMOVAL OF FERTILIZER ELEMENTS IN FIRST CROPS, SEPT., 1895, TO FEB., 1896.

	Plot 9	Plot 10	Plot 11	Plot 12	Plot 13	Plot 14
Nitrogen in fertilizer, grams	32.7	32.7	40	47	40	47
Nitrogen in crop, grams	12.68	13.88	14.92	17.26	19.15	21.65
Nitrogen taken by crop,* percent.	39	42	37	37	48	46
Phos. acid in fertilizer, grs.	8.1	10.0	10.0	10.0	10.0	10.0
Phos. acid in crop, grams	5.09	5.53	6.14	6.31	6.85	7.29
Phos. acid taken by crop,* percent.	63	55	61	63	69	73
Potash in fertilizer, grams	29.3	35.0	35.0	35.0	40.0	45.0
Potash in crop, grams	18.74	20.97	22.54	25.54	33.47	36.51
Potash taken by crop*, percent.	64	59	65	73	84	81

TABLE IV.—SUPPLY AND REMOVAL OF FERTILIZER ELEMENTS IN SECOND CROPS, FEB. TO JULY, 1896.

	Plot 9	Plot 10	Plot 11	Plot 12	Plot 13	Plot 14
Nitrogen in fertilizer, grams	32.7	32.7	40.0	47.0	40.0	47.0
Nitrogen in crop, grams	17.65	17.66	22.26	20.33	22.54	26.06
Nitrogen taken by crop,* percent.	54	54	56	43	56	55
Phos. acid in fertilizer, grs.	8.1	10.0	10.0	10.0	10.0	10.0
Phos. acid in crop, grams	6 53	6.71	9.41	7.52	7.74	7.81
Phos. acid taken by crop,* percent.	81	67	94	75	77	78
Potash in fertilizer, grams	29.3	35.0	35.0	35.0	40.0	45.0
Potash in crop, grams	35.09	35.65	42.79	38.80	42.02	46.66
Potash taken by crop,* percent.	119	102	122	111	105	104

Table IV shows that from 43 to 56 per cent. of the nitrogen, from 75 to 94 of the phosphoric acid and from 102 to 122 per cent. of the potash in the fertilizer, were taken up by the crop.

It appears probable that in every case the nitrogen was limited in its efficiency by scarcity of potash if not of phosphoric acid.

The results also show that the crop took some potash from the ashes used as soil.

On plots 13 and 14, about 72 per cent. of the nitrogen, 91 per

* i. e., parts harvested per 100 applied.

cent. of the phosphoric acid and 72 per cent. of the potash taken from the soil in the second crop, were found in the fruit. In round numbers, therefore, more than three-fourths of the plant food taken passed into the fruit; last year four-fifths was in the fruit.

The ratio of phosphoric acid to nitrogen and potash in the total crops on plots 13 and 14 is 1: 3.0: 5.3. The corresponding ratios in the fertilizers applied to these two plots are, on plot 13, 1: 4.0: 4.0 and on plot 14, 1 : 4.7 : 4.5.

It may be here remarked that the ratio of these ingredients to each other in the total crop is no sure indication of the ratio which they should bear to each other in the fertilizer.

Potash supplied by the Soil.

In two cultures carried out by way of control to ascertain to what extent potash existed in the anthracite coal ashes in available form, plot 17A received 40 grams of nitrogen and 10 grams of phosphoric acid with no potash. The yield of fruit and the quantities of fertilizer ingredients taken by the crops were:

YIELD OF PLOT 17 A.

		First Crop.	Second Crop.	Total.
Weight of fruit,	pounds	12.00	9.10	21.10
" "	grams	5436.00	4150.00	9586.00
Nitrogen in Crop,	"	14.64	12.48	27.12
Phosphoric acid in Crop,	"	4.38	3.00	7.38
Potash in Crop,	"	20.24	19.76	40.00

The two crops were able to obtain 40 grams of potash from the coal ashes, about three-fifths as much as was taken in the two crops from plot 13, to which like amounts of nitrogen and of phosphoric acid, together with 80 grams of potash, had been added in the fertilizer.

B. The Phosphoric Acid Series, Plots 27–32, Bituminous Coal Ashes and Meadow Peat.*

The plan of experiments bearing on the phosphoric acid supply and the results are shown in Tables V, VI, VII and VIII. In this series bituminous coal ashes and peat obtained from Beaver Meadow Swamp near New Haven, were used. Moss peat contains but 0.6 per cent. of nitrogen and this is quite unavailable to the tomato plant, as was proved by our experiments last year

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* See Plate I, page 231.

(Report 1895, p. 84), but the Beaver Meadow peat contains over two per cent. of nitrogen whose availability to the tomato plant we have not yet determined.

First Crop.

The six plots, 27 to 32 inclusive, were each fertilized with 40 grams of nitric nitrogen and 35 grams of potash. To plot 27 no phosphoric acid was added, but plots 28, 29, 30, 31 and 32 received 4, 8, 10, 12 and 15 grams of phosphoric acid respectively.

All the plants in plots 27 to 32 were free from disease and developed normally, except one in plot 29 which was injured and rejected.

The figures representing the yield of plot 29 have accordingly been increased by one-fifth to make them more nearly comparable with the others.

The statistics of the first crop, Tables V and VII, show that:

TABLE V.—TOMATO CULTURES IN BITUMINOUS COAL ASHES AND MEADOW PEAT. SEPT., 1895, TO FEB., 1896.

PHOSPHORIC ACID SERIES.

Fertilizers.	Plot 27	Plot 28	Plot 29†	Plot 30	Plot 31	Plot 32
Nitrate of Soda, grams	249.6	249.6	249.6	249.6	249.6	249.6
Nitrogen "	40.0	40 0	40.0	40.0	40.0	40.0
Dissolved Bone Black, "	none	23.5	47.1	58.8	70.5	88.3
Phosphoric Acid, "	"	4.0	8.0	10.0	12.0	15.0
Muriate of Potash, "	70.0	70.0	70.0	70.0	70.0	70.0
Potash, "	35.0	35.0	35.0	35.0	35.0	35.0
Yield.						
Total yield of fruits, grams*	4269	5140	4804	5795	6599	7214
" " vines, "	288	304	327	296	366	365
" " roots, "	20.7	23.8	24.0	17.5	21.0	22.5
Average yield of fruits per plant, grams	712	857	801	966	1099	1202
" " " " pounds	1.6	1.9	1.8	2.1	2.4	2.6
" number of fruits per plant	10	12	14	13	17	18
" weight of ripe fruits, grams	79	87	65	79	70	78
Percent of perfect-shaped fruits	42	37	46	35	55	60
Average yield of fruits per square foot of bench area, grams	308	370	347	418	476	520
Average yield of fruits per square foot of bench area, pounds	.7	.8	.8	.9	1.1	1.2

* See note to Table I, page 210.

† One plant rejected. Stated yield is one-fifth greater than actual yield.

1. With 40 grams of nitrogen and 35 of potash the application of 15 grams of phosphoric acid gave a larger yield of fruit and of total crop than any smaller application, and make it probable that larger quantities of phosphoric acid would have still further increased the yield.

2. The chemical analysis of the crop on plot 27, Table VII, shows that when no phosphate was added, the crop was able to gather from the coal ashes of which the soil was largely composed, 4.28 grams of phosphoric acid; more than half as much as was assimilated by the crop on plot 32. A similar experiment on plot 17B. from which two tomato crops were harvested is described on p. 216.

3. That the yield of fruit was not larger in plots 27 to 32 than on plots 13 and 14, may be due to the fact that the former were less favorably situated as regards light and air than the plots in the nitrogen series.

4. The fact that 86 to 90 per cent. of the fertilizer-potash on plots 31 and 32 were taken up by the crop, makes it probable that the efficiency of the nitrogen and phosphoric acid supplies on these plots was limited somewhat by the supply of potash.

5. On plots 31 and 32 about 54 per cent. of the nitrogen, 61 per cent. of the phosphoric acid and 65 per cent. of the potash taken up by the crop, or in round numbers, a little less than two-thirds of the whole, was contained in the fruit.

Second Crop.

In preparation for the second crop, fertilizers were applied to each plot in amount sufficient to replace the nitrogen, phosphoric acid and potash, which were removed by the first crop, and to increase these quantities up to 55 grams in the case of nitrogen, and 50 grams in that of potash.

The quantities of phosphoric acid in each plot after the second application were as follows:

Plot 27, 15 grams.
Plot 28, 21 grams.
Plot 29, 21 grams.
Plot 30, 24 grams.
Plot 31, 27 grams.
Plot 32, 30 grams.

The smallest quantity (15 grams) of phosphoric acid is the same as the largest amount used for the first crop, Table V, and the quantity was increased in successive plots to 30 grams.

The results given in Table VI and VIII indicate that:

TABLE VI.—TOMATO CULTURES IN BITUMINOUS COAL ASHES AND MEADOW PEAT. FEBRUARY TO JULY, 1896.

PHOSPHORIC ACID SERIES.

Fertilizers.	Plot 27	Plot 28	Plot 29†	Plot 30	Plot 31	Plot 32
Nitrogen in Nitrate of Soda, grams	55.0	55.0	55.0	55.0	55.0	55.0
Phosphoric Acid in Diss. Bone Black, "	15.0	21.0	21.0	24.0	27.0	30.0
Potash in Muriate of Potash, "	50.0	50.0	50.0	50.0	50.0	50.0

Yield.						
Total yield of fruits, grams*	8902	9661	9405	10135	9337	8950
" " vines, " " " roots, "	686	452	659	808	556	520
Average yield of fruits per plant, grams	1483	1610	1567	1689	1556	1492
" " " " " pounds	3.3	3.5	3.4	3.7	3.4	3.3
" number of fruits per plant	14	16	14	18	16	14
" weight of ripe fruits, grams	113	112	117	97	102	108
Percent. of perfect-shaped fruits	67	63	42	60	64	63
Average yield of fruits per square foot of bench area, grams	642	697	678	731	673	646
Average yield of fruits per square foot of bench area, pounds	1.4	1.5	1.5	1.6	1.5	1.4

1. With 55 grams of nitrogen and 50 of potash in the fertilizer, 24 grams of phosphoric acid, plot 30 gave the largest yield, and larger amounts of phosphoric acid, plots 31 and 32, did not increase but rather depressed the yield.

2. The per cent. of fruit of perfect shape in plots 27 to 32 was much larger than in any other plots.

3. On plot 30, which gave the largest yield, rather more potash was taken by the crop than was added in the fertilizer. It is, therefore, possible that the yield was limited by the potash supply.

4. Fifty-two per cent. of the nitrogen, 65 per cent. of the phosphoric acid and 54 per cent. of the potash taken up by the crop were found in the fruit, on plot 30.

Phosphoric Acid supplied by the Soil.

Plot 17 B, not included in Tables V–VIII, was filled with anthracite ashes and peat from Beaver Meadow, to which were added 40 grams of nitric nitrogen and 35 grams of potash, but no phospho-

* See note at bottom of Table 1, p. 210.

† One plant rejected.

ric acid. The quantities of nitrogen and of potash removed in the first tomato crop were added to the soil in form of nitrate of soda and muriate of potash before the second crop was planted. The object of this experiment was to determine how much phosphoric acid the two tomato crops were able to obtain from the ashes and peat.

Tables VII and VIII.—Tomato Cultures in Bituminous Coal Ashes and Meadow Peat.

Table VII.—Supply and Removal of Fertilizer Elements in First Crops. September, 1895, to February, 1896.

	Plot 27	Plot 28	Plot 29	Plot 30	Plot 31	Plot 32
Nitrogen in fertilizer, grams	40.0	40.0	40.0	40.0	40.0	40.0
Nitrogen in crop, "	13.3	17.04	13.34	15.49	19.83	20.66
Nitrogen removed by crop,* percent.	33	43	33	39	49	52
Phos. acid in fertilizer, grams	0.0	4.0	8.0	10.0	12.0	15.0
Phos. acid in crop, "	4.28	5.10	4.29	5.81	7.05	7.59
Phos. acid removed by crop,* percent.	---	127.0	54	58	59	50
Potash in fertilizer, grams	35.0	35.0	35.0	35.0	35.0	35.0
Potash in crop, "	21.75	24.75	19.52	24.01	30.12	31.24
Potash removed by crop percent.	62	71	56	70	86	90

Table VIII.—Supply and Removal of Fertilizer Elements in Second Crops. February to July, 1896.

	Plot 27	Plot 28	Plot 29	Plot 30	Plot 31	Plot 32
Nitrogen in fertilizer, grams	55.0	55.0	55.0	55.0	55.0	55.0
Nitrogen in crop, "	24.94	24.14	24.18	31.33	24.28	25.14
Nitrogen removed by crop,* percent.	44	44	44	57	44	46
Phos. acid in fertilizer, grams	15	21	21	24	27	30
Phos. acid in crop, "	8.5	7.77	7.12	10.15	7.79	7.90
Phos. acid removed by crop,* percent.	53	37	34	42	29	26
Potash in fertilizer, grams	50	50	50	50	50	50
Potash in crop, "	43.04	39.0	36.95	54.19	42.48	43.12
Potash removed by crop, percent.	86	78	74	108	85	86

* i. e. parts harvested per 100 applied.

The weight of the fruit and the quantities of nitrogen, phosphoric acid and potash taken by the crops are as follows:—

YIELD OF PLOT 17 B.

		First Crop.	Second Crop.	Total.
Weight of fruits,	pounds	10.40	9.40	19.70
" "	grams	4708.00	4248.00	8956.00
Nitrogen in crop,	"	11.04	11.28	22.32
Phosphoric acid in crop,	"	2.58	2.36	4.94
Potash, "	"	21.12	16.78	37.90

These figures may be compared with those for the first crop from plot 32, which received the same quantities of nitrogen and potash and in addition 15 grams of phosphoric acid.

Plot 17 B produced, in the first crop, two-thirds as much fruit as plot 32, and took from the ashes alone 2.58 grams of phosphoric acid, one-third as much as was taken by the crop on plot 32.

The second crop on plot 17 B was somewhat smaller and took somewhat less phosphoric acid from the ashes (2.36 grams).

C. Comparison between Tomatoes raised in Compost and those raised in Coal Ashes and Peat.

Statistics regarding the yield on five plots filled with Compost are given in Table IX.

These plots were in different parts of the forcing house, somewhat differently exposed to light and heat. Plot 18 was thought to be the most favorably situated, and 23 ranked next. There was no appreciable difference in the relative exposures of the other plots.

Plots 18 and 23 received no chemical fertilizers, plot 37 received 35 grams of potash and 100 grams of carbonate of lime, while plots 19 and 22 each received in September, for the first crop, 32.7 grams of nitrogen, 10 of phosphoric acid and 29.3 of potash, and for the second crop, enough of each of these to replace the amount removed by the first crop.

The plants on these five plots were perfectly healthy through the season and kept their dark green color much longer than those grown in Coal Ashes and Peat.

Addition of fertilizer chemicals to this rich Compost soil, plots 19 and 22, did not increase the yield.

TABLE IX.—TOMATO CULTURES IN COMPOST, SECOND CROP. FEB. TO JULY, 1896.

Fertilizers.	Plot 18	Plot 23	Plot 37	Plot 19	Plot 22
Nitrogen in nitrate of Soda, grams	-----	-----	-----	32.7	32.7
Phosphoric acid in Diss. Bone Black, grams	-----	-----	-----	10	10
Potash in Muriate, grams	-----	-----	35	29.3	29.3
Carbonate of Lime, grams	-----	-----	100	-----	-----
Yield.					
Total yield of fruits, grams*	10558	8523	8984	9162	8820
Total yield of vines and roots, grams	898	608	919	1146	1001
Average yield of fruits per plant, grams	1759	1420	1497	1527	1470
Average yield of fruits per plant, pounds	3.9	3.1	3.3	3.4	3.2
Average number of fruits per plant	19	14	16	17	17
Average weight per fruits, grams	104	104	101	95	89
Percent. of perfect-shaped fruits	65	44	57	75	60
Average yield of fruits per square foot of bench area, grams	761	615	648	660	636
Average yield of fruits per square foot of bench area, pounds	1.7	1.4	1.4	1.5	1.4

Comparative Yield of Fruit.—In the following table are given the average weights of fruit and of nitrogen, phosphoric acid and potash in the total crops, from the five plots of Compost just described and, for comparison, the corresponding data for the three plots of Coal Ashes and Peat, in both the nitrogen series and phosphoric acid series which had received the largest applications of fertilizer chemicals.

	Average yield of fruit. (Grams.)	Quantities taken up by the Crops (grams). Nitrogen.	Phos. Acid.	Potash.	Ratios of Phos. Acid to Nitrogen and Potash.
Compost, plots 18, 23, 37, 19, 22	9209	27.3	10.5	54.9	1 : 2.6 : 5.2
Ashes and Peat, plots 30, 31, 32	9474	26.9	8.6	46.6	1 : 3.1 : 5.4
Ashes and Peat, plots 12, 13, 14	10467	23.0	7.7	42.5	1 : 3.0 : 5.5

The small differences in the yield of fruit are in favor of the Coal Ashes and Peat.

Time of Ripening.—The rate of ripening is shown in Table X.

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* See note, bottom of page 210.

TABLE X.—QUANTITIES OF TOMATOES HARVESTED IN SUCCESSIVE WEEKS FROM EQUAL AREAS OF COMPOST AND OF COAL ASHES AND PEAT.

	Compost.		Coal Ashes and Peat.	
Week ending	For the week. grams.	Total. grams.	For the week. grams.	Total. grams.
April 28	1095	1095	884	884
May 5	2052	3147	895	1779
12	1107	4254	2249	4028
19	6280	10534	12121	16149
26	4178	14712	4313	20462
June 2	3192	17904	2431	22893
9	1951	19855	2200	25093
16	1909	21764	1423	26516
June 16 to July 8	6321	28085	4726	31242
Average per plot	9362		10414	

During the first two weeks the average yield of fruit from the Compost was the larger, for the next three weeks the Ashes and Peat produced the most, and thereafter the yield per week from the Compost was generally larger than from Ashes and Peat, although, as has been already noted, the total yield for the season was largest on the latter.

In this experiment fully two-fifths of the crop on Ashes und Peat ripened in a single week, while on Compost soil but one-fifth of the crop ripened in that time. This is a point of importance in forcing tomatoes for market which will receive further attention.

Root Galls.—Two plots, 20 and 21, were used to study the development of root galls in soil which had carried tomatoes the previous year and had not been frozen or removed from the forcing-house.

Plot 21 was filled with Peat and Anthracite Ashes, to which were added 32.7 grams of nitric nitrogen, 8.1 grams of soluble phosphoric acid and 29.3 grams of potash. Plot 20 contained the Compost with the same addition of chemicals.

The roots of the crop in plot 20 were well covered with nematode galls, while in plot 21 there were no galls on the roots, outside of the ball of earth which was set in with the young plant.

The results of this season's work may be summarized as follows:

1. A crop of tomatoes, started in September and beginning to bear in December, was only seven-tenths as large as one started three months later, when the amount of sunlight was daily increasing.

2. The largest quantities of nitrogen, phosphoric acid and potash taken by any one crop, [Plot 30, Feb. to July, 1896,] per 100 square feet of bench space, were as follows:

	Grams.		Pounds.	Ounces.	
Nitrogen	226	Equivalent to	3	10	Nitrate of Soda.
Phosphoric Acid	74	"	1		Dissolved Bone Black.
Potash	391	"	1	12	Muriate of Potash.

The crop on this plot amounted to 1.6 pounds of tomatoes per square foot of bench space, but other crops of 1.8 pounds took no larger quantities of fertilizer ingredients from the soil.

3. Somewhat less than two-thirds of these fertilizer ingredients were contained in the fruit.

4. To enable the plants to get these fertilizer elements as required, there should be a large excess of them in the soil.

5. With the larger amounts of fertilizer chemicals used on the plots this year, larger quantities of nitrogen, phosphoric acid and potash have gone into the fruit. Every 100 pounds of ripe tomatoes has taken :

	Ounces.		Ounces.	
Nitrogen	2.9	Equivalent to	18.2	Nitrate of Soda.
Phosphoric Acid	1.2	"	7.5	Dissolved Bone Black.
Potash	5.0	"	10.0	Muriate of Potash.

6. By the use of fertilizer chemicals, and a soil consisting of Anthracite Coal Ashes mixed with a little Peat (3 per cent.) there has been no difficulty in raising a larger crop of tomatoes than was raised in a rich Compost either with or without fertilizer chemicals.

The quantities of fertilizer chemicals which gave the maximum yield in our experiments were, per 100 square feet of bench :

Nitrate of Soda	4 lbs.	11 oz.	costing	11.8	cents.
Dissolved Bone Black		15 "	"	1.2	"
Muriate of Potash	1 "	2 "	"	2.4	"
Total				15.4	

In our tests the average yield from Coal Ashes and Peat was one-tenth larger than from the Compost.

7. The plants began to bear at about the same time on both soils.

During the first two weeks the yield of fruit from Compost was the larger, for the next three weeks the Ashes and Peat produced the most, and thereafter the yield per week from Compost was generally larger than from Ashes and Peat, although the total yield for the season was largest on the latter.

Two-fifths of the whole crop from the Coal Ashes and Peat was harvested within one week. Naturally this comparison is only applicable to the particular soils under experiment. That Composts may differ very greatly in their adaptability to the growth of particular crops is matter of common observation.

8. Roots growing in Coal Ashes and Peat have not been affected by nematode galls.

II. Experiments with Radishes.

The plots used in this experiment were in a row on the west bench (see H, plate I) in the new forcing-house which is described on page 231, each having an area of 14.53 square feet. Plots Nos. 67 to 71 inclusive were filled to a depth of five inches with a mixture of coal ashes, peat and carbonate of lime such as is described on page 205, to which fertilizer chemicals were added in varying amounts.

Plots 72, 73 and 74 were filled to the same depth with a compost which was made of garden surface soil mixed with one-third its bulk of stable manure and had been worked over several times during the previous summer.

First Crop.

The general plan of these experiments and the results obtained are to be seen in Table XI, p. 223.

The benches were filled on Jan. 11th and 13th, and on the 14th were sown with seed of Cardinal Globe radish from H. A. Dreer, Philadelphia, at intervals of two inches in rows 4½ inches apart, and were covered about ⅝ inch deep.

All the seed germinated. On Jan. 31, the seedlings had come up, and quite evenly, except on plot 74. The smallest plants were in plot 74, the largest in plots 72 and 73.

The temperature of the house was kept at about 65° F. during the day, and about ten degrees lower at night. The house was well ventilated, and the plants were syringed and watered as occasion required.

The radishes were pulled when ¾ inch in diameter, brushed clean and, after weighing, tied up, 10 in a bunch. The first were pulled on Feb. 15th, and all were gathered by the 24th.

Second Crop.

On Feb. 25th, all the plots were sown as before without any further addition of fertilizer chemicals. The plants came up within a few days.

On March 16, all were very even in size and color. The leaves seemed a trifle larger on No. 74 than on the other plots. This crop was harvested between March 24th and April 1st.

TABLE XI. RADISH CULTURES.

	ANTHRACITE COAL ASHES AND PEAT.					COMPOST.		
	Plot 67	Plot 68	Plot 69	Plot 70	Plot 71	Plot 72	Plot 73	Plot 74
First Crop. Fertilizers added.								
Nitrate of Soda, grams	162.9	203.4	242.9	203.4	203.4	--------	--------	162.9
Nitrogen. "	26.1	32.5	38.9	32.5	32.5	--------	--------	26.1
Dissolved Bone Black, "	80.0	80.0	80.0	80.0	80.0	--------	--------	80.0
Phosphoric Acid, "	13.2	13.2	13.2	13.2	13.2			13.2
Muriate of Potash, "	88.8	88.8	88.8	73.5	117.6	--------	--------	88.8
Potash, "	44.4	44.4	44.4	36.8	58.8	--------	--------	44.4
Number of bunches of radishes	25	22	22	20½	23	20½	23	24½
Weight of radishes, "	1703	1735	1568	1565	1599	1553	1558	1704
Second Crop. (No fertilizers added.)								
Number of bunches of radishes	25	25	24½	23¼	23	17	16½	23
Weight of radishes, "	1534	1439	1442	1355	1374	795	651	1344
Third Crop. Fertilizers added.*								
Nitrate of Soda, "	47.4	46.5	44.1	42.8	43.5	--------	--------	41.5
Nitrogen, "	7.6	7.4	7.1	6.8	7.0	--------	--------	6.6
Dissolved Bone Black, "	50.4	50.2	49.6	49.6	49.5	--------	120	53.1
Phosphoric Acid, "	8.2	8.1	8.0	8.0	8.0	--------	19.8	8.6
Muriate of Potash, "	15.2	14.9	14.1	13.7	13.9	88.8	--------	20.5
Potash, "	7.6	7.4	7.1	6.8	7.0	44.4	--------	10.2
Number of bunches of radishes	23	24	26	28	28	29½	29	30½
Weight of radishes	1545	1816	1992	2319	2248	2014	1501	2617

* Making the amounts of nitrogen, phosphoric acid and potash the same as supplied to the first crop.

Third Crop.

From the weights and chemical analyses of the first and second crops was determined how much nitrogen, phosphoric acid and potash had been removed by them from the plots. These amounts (together with 6.6 grams of phosphoric acid in form of dissolved bone black) were applied to all the plots with exception of Nos. 72 and 73, before planting a third crop.

To plot 72, 88.8 grams of muriate of potash, equivalent to 44.4 grams of potash, and to plot 73, 120 grams of dissolved bone black, equivalent to 20 grams of phosphoric acid, were added.

The seed, of the same stock as that previously used, was sown precisely as before, on April 7th. It came up very evenly, and the crop was harvested between April 29th and May 6th.

TABLE XII. ANALYSES OF RADISHES. [ENTIRE PLANTS.]

	From Compost.	From Ashes and Peat.
Eight bunches weigh,	568 grams.	574 grams.
and contain,		
Nitrogen	.222 per cent.	.235 per cent.
Phosphoric Acid	.066 "	.048 "
Potash	.342 "	.235 "

Since the number of radishes from each plot depends upon the quality of the seed used and the weight depends almost entirely upon the age of the plants, no great stress should be placed upon either the number of bunches or the weight of crop in estimating the comparative profits of the crops. The weight of the crop from each plot was taken to enable us to determine from the analyses the exact amounts of nitrogen, potash, and phosphoric acid which it contained.

To grow radishes large enough for market in the shortest possible time is the market-gardener's aim. In these cultures the period of harvest covered nearly a week, the radishes being removed when large enough for market, while a commercial grower would doubtless clear the bench at one or, at most, two gatherings. In every instance the radishes grown in coal ashes and peat with chemical fertilizers reached marketable size earlier by one to four days than those grown in compost. The quality of the radishes was considered to be alike.

The third crop was the quickest to mature, and the second required less time than the first, doubtless because of the increase of solar energy.

Results of these cultures are :—

1. Radishes can be grown in coal ashes mixed with a little peat and carbonate of lime, by the aid of fertilizer chemicals, no less well and mature a little more quickly than in compost, and are quite as smooth, tender and crisp.

2. One thousand bunches of radishes, tops included, weighed 148 pounds and took from the soil :

5.2	**ounces**	**Nitrogen,**	**equivalent to**	**2 lbs. 1 ounce**	**Nitrate of Soda.**
1.6	**“**	**Phosphoric Acid,**	**“**	**10 ounces**	**Dissolved Bone Black.**
8.1	**“**	**Potash,**	**“**	**16¼ “**	**Muriate of Potash.**

3. To raise 1000 bunches of radishes in a single crop there were required in our experiments, on the average, 518 square feet of bench space. The largest crop required but 414 square feet per 1000 bunches.

III. CARNATION CULTURES.

The space marked I in the southwest corner of the forcing house, figured on page 231, was divided into three plots, designated as A, B, C, each having an area of 7.08 square feet, which were planted to carnations.

Plot A was filled with the compost described on page 205, to which were added 29 grams of Nitrate of Soda, 14.8 grams of Muriate of Potash and 12.25 grams of Dissolved Bone Black.

Plot B was filled with anthracite coal ashes mixed with three per cent. of moss peat and 50 grams of carbonate of lime as described on page 205. Chemical fertilizers were added as follows: Nitrate of Soda 58 grams, Muriate of Potash 29.6 grams, Dissolved Bone Black 24.5 grams, these being double the quantities added to Plot A.

Plot C was filled with compost. All the plots had a good southern exposure. Plot C, at the southwestern corner, was perhaps more favorably situated as regards light than the others.

The plants were raised from cuttings taken in January, 1895. These were duly potted, and in May set in the open ground, where they remained until September, when thrifty plants were put in 5-inch pots and set in the ground for two or three weeks, and then removed to an unheated vegetation house. December 14th the plants were transferred to the forcing-house plots. Up to this time all flower buds had been pinched off; but the plants were now allowed to make single blossoms, all lateral buds being removed.

Carnations should be set in the benches during September, but owing to delay in finishing the forcing-house the crop could not be started until very late. It will be seen that no liquid manures were given the plants, and this fact, together with the late setting, accounts for the small number of blossoms obtained.

The plants were of three varieties, Daybreak, Lizzie McGowan and Garfield. Three of each variety were placed in a plot, each plot containing nine plants.

Each plant was numbered, and the date of picking, diameter of blossom, and notes on shape, length of stem, etc., recorded up to May 1st. No observations were taken after this date, but the plants were allowed to remain in the benches, where they continued to blossom during the summer.

The table, p. 227, shows the yield of the plants up to May 1st. Had the observations extended over a longer period the yield would have been much larger, as the plants blossomed freely all through the summer.

No analyses of flowers or plants were made, so that the amounts of nitrogen, phosphoric acid and potash taken up by the plants and removed in the blossoms is not known.

A much more extensive experiment is now in progress, in the report of which these facts will be set forth.

These cultures prove that good carnations may be grown in coal ashes and peat with fertilizer chemicals, and that both the number and the average diameter of the flowers may be considerably greater than where a portion or the whole of the plant food is supplied by soil or manure. Thus, in one experiment, the number of flowers raised in coal ashes and peat, plot B, was more than three-eighths larger than that raised on compost, either alone or with fertilizer chemicals, plots A and C.

IV. Experiments with Cucumbers.

Plots Nos. 47–66 occupy the space marked O in the house figured on page 231.

In the fall of 1895, plots 47–55, on the east side of the center bench, were filled with a mixture of bituminous coal ashes and peat, and plots 57–66, on the west side, were filled with a rich compost.

All the plots containing ashes and some of those containing compost were dressed with fertilizer-chemicals and used during the winter of 1895–96 for experiments with lettuce.

The same plots were planted to cucumbers in the summer of 1896.

TABLE XII.—CARNATION CULTURES. YIELD OF BLOSSOMS.

	Plot A. Compost with Chemicals.			Plot B. Coal Ashes and Peat with Chemicals.			Plot C. Compost without Chemicals.		
Variety	Garfield.	Lizzie McGowan.	Daybreak.	Garfield.	Lizzie McGowan.	Daybreak.	Garfield.	Lizzie McGowan.	Daybreak.
No. of plants	3	3	3	3	3	3	3	3	3
No. of flowers previous to May 1st	19	5	7	21	12	16	19	6	3
Average diameter of flowers (inches)	1.96	2.05	2.07	2.04	2.25	2.07	1.84	2.19	2.08
No. of perfect flowers	18	3	7	21	10	14	16	5	3

To this end the quantities of nitrogen, phosphoric acid and potash removed in the lettuce crops from the plots filled with bituminous ashes and peat were replaced so that each plot contained in the residues and newly added fertilizers, 10.3 grams of phosphoric acid and 56.2 grams of potash in form of dissolved boneblack and muriate of potash.

Five plots received quantities of nitrogen ranging from 24 to 64 grams in form of nitrate of soda, and five other plots received like quantities of nitrogen in form of cotton seed meal.

To the soil of each of the compost plots were added 32 grams of nitrogen, 10.3 grams of phosphoric acid and 56.2 grams of potash, without regard to the quantities which had been removed in the lettuce crop.

Seeds of Arlington White Spine Cucumber were sown in flats May 1st. The seedlings, first put in two and one-half inch pots, were shifted in about two weeks to four inch pots, and were set, four in each plot, on June 1st.

The vines were allowed to spread on the soil, but were confined for the most part to the plots in which they were planted.

The glass required some shading during the summer and special care was given to maintaining abundant moisture in the air as well as in the soil.

Early in July plants growing in the coal ashes and peat were decidedly larger than those growing in compost, and those supplied with nitrate-nitrogen appeared thriftier than those supplied with nitrogen in form of cotton seed meal.

The first blossoms appeared on June 20th.

Flowers were hand-pollinated every other day until Aug. 1st. Bees were then abundant in the house and further hand-pollination was found unnecessary.

The first cucumbers were picked July 14th from plots 47, 51, 52, 61, 64, and 66, and the experiment was concluded on September 16th.

Only general results are here given, as the experiment is preliminary to a fuller study of the subject.

1. From 100 square feet of bench space, filled with rich compost, 85½ pounds of cucumbers were harvested. From an equal space filled with a mixture of bituminous coal ashes and peat 99 pounds of cucumbers were harvested.

The average weight of a single cucumber was 7.2 ounces in the former case and 7.4 ounces in the latter.

2. As a source of nitrogen, nitrate of soda and cotton seed meal were about equally efficient in the coal ashes and peat—(the yield was at the rate of 100 pounds per 100 square feet of space where nitrate was used and 98.8 pounds where cotton seed meal was used)—but with compost, cotton seed meal was decidedly more efficient (94.7 pounds per 100 square feet of space, while with nitrate of soda only 76.4 pounds were produced).

3. The fresh cucumbers contained:

	Raised on Compost.	Raised on Coal Ashes and Peat.
Nitrogen	0.095 per cent.	0.083 per cent.
Phosphoric Acid	0.053 "	0.032 "
Potash	0.222 "	0.207 "

From 100 square feet of bench space, the vines and roots took the following quantities of the ingredients named:

	Compost.		Bituminous Coal Ashes and Peat.	
	Per plot. grams.	Per 100 square feet. grams.	Per plot. grams.	Per 100 square feet. grams.
Nitrogen	5.69	38.7	4.54	30.9
Phosphoric Acid	1.20	8.2	0.61	4.1
Potash	12.08	82.1	7.77	52.8
Equivalent to		Ounces.		Ounces.
Nitrate of Soda	----	8.5	----	6.8
Dissolved Bone Black	----	1.8	----	0.9
Muriate of Potash	----	5.8	----	3.7

NEW FORCING HOUSE.

By W. E. Britton.

During the fall of 1895 the facilities for experimental work were increased by the erection of a forcing-house (see F, p. 231) fifty feet long and twenty feet wide, with an attached work-room, (G) 10 feet x 25 feet. A brief description of the house is here given, as we shall have frequent occasion to refer to the arrangement of it in the account of our experiments.

The house was designed and erected by Lord, Burnham & Co., of Irvington, N. Y. Running nearly north and south, with even span, this house is connected with the tomato house (see D and E, plate I) by a passage 5 ft. wide and 4 ft. long. The superstructure stands upon cast iron posts or foot-pieces, bedded in cement thirty inches below the surface of the ground. Bolted to these foot-pieces are the wrought iron rafters, which are bent at the spring line and extend to the ridge, where they are fastened together by cast iron brackets.

Sash bars extend from the ventilating sash at the ridge to the spring line, being supported in the middle by an angle-iron purlin bolted to the rafters. The sash bars and all parts of the frame exposed to the weather are of cypress wood. Wooden cap-pieces are fitted over the iron frame so that no injury results from the contraction and expansion of the metal.

The glass used in this house is known to the trade as "second quality, double thick," and is 16x24 inches in size. The vertical walls are glazed above the benches on all sides. The ridge is 11 feet 6 inches and the spring line 4 feet 10 inches from the ground level.

Ventilation is secured by a continuous line of sash 30 inches wide on either side of the ridge and hinged to it, and a line of sash 24 inches wide extending the entire length of the west side, just above the bench.

Across the north end a lean-to (G) serves the purpose of a work-room. This is 10 feet wide and 25 feet long, and being glazed on the roof and sides, like the house itself, serves equally well as a house for growing stock plants. The floor of this lean-to is of cement, with a smooth surface, and can be used for mixing soils and fertilizers. This lean-to has a continuous ventilating sash, 30 inches wide at the upper angle of the roof, and hinged at the ridge. During the winter of 1895–96 the sections of benches indicated by the letters J, M and N, were used for growing stock plants.

This house is heated by steam brought from the central boiler which furnishes steam for all the Station buildings. The steam enters the house through an overhead pipe and returns through smaller pipes under the benches. Four pipes, divided into two coils and provided with valves, pass underneath each of the side benches. Under the center bench there are four coils of two pipes each, also furnished with suitable valves. This arrangement allows complete control of the temperature of the house.

The benches are 5¾ inches in depth and the side benches are 34 inches wide, with a space of two inches between the bench and the side of the house to permit the circulation of air. The center bench is 8 feet wide. Previous to starting any experimental work, the center and two side benches were temporarily divided into plots, having an equal area of 14.53 square feet.

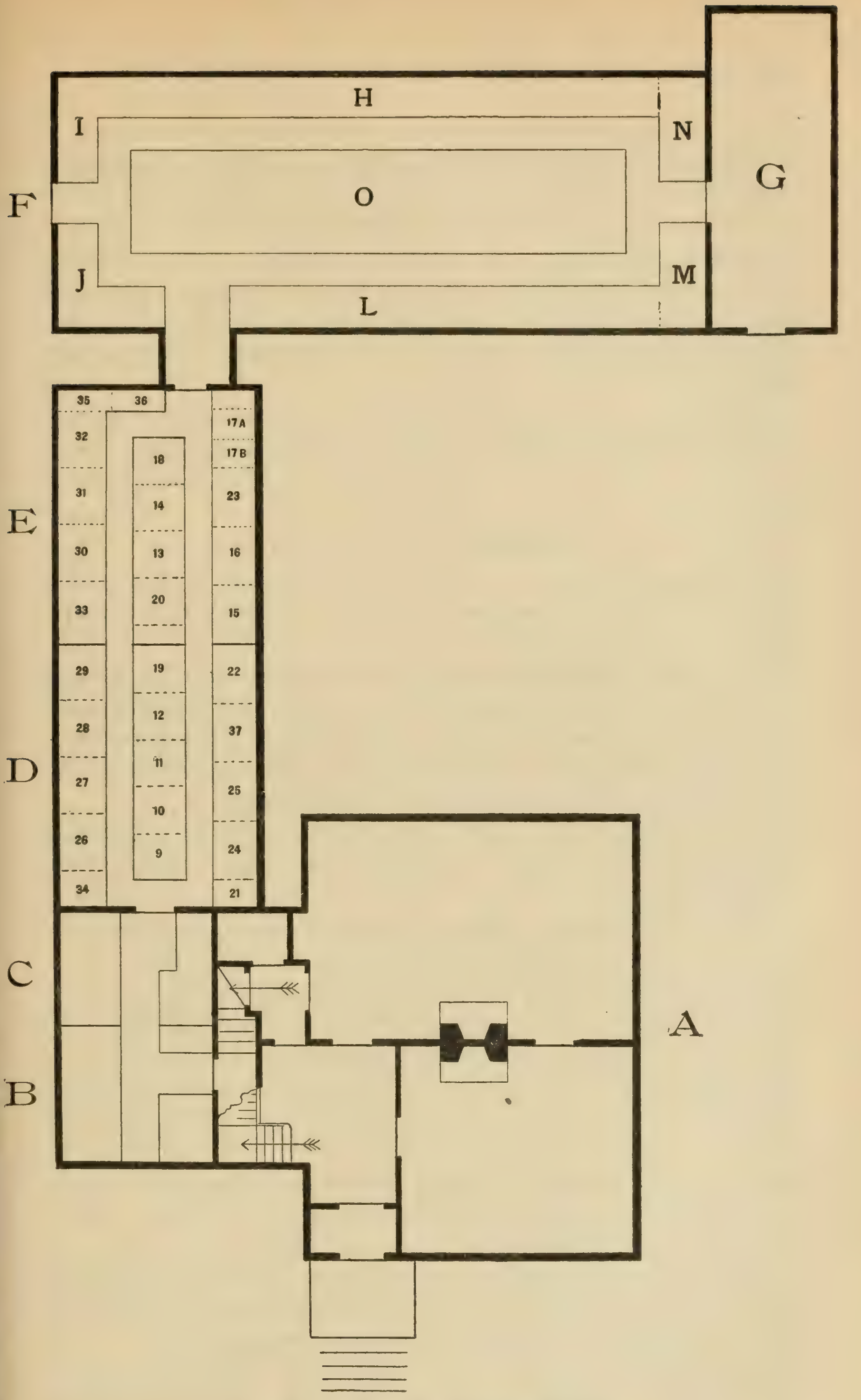

PLATE I. Plan of Forcing-Houses.

A, Botanical Laboratory; B, C, Small Plant Houses; D, E, Tomato Houses; F, New Forcing-House; G, Work-room.

BLIGHT, BURN OR SCALD OF TOMATO PLANTS.

By W. E. Britton.

On November 9th, 1895, during continuous cloudy weather, some of the tomato plants in one of our forcing-houses were affected with a blight which steadily increased from that date and made visible gain during periods of unbroken cloudiness and rain.

The blight first appeared on plots 9 and 10 of the cultures described on p. 205, soon after attacked the adjoining plots 11 and 12, and by January 14th, 1896, had nearly destroyed the plants on these four plots, which were all rooted in a mixture of coal ashes and peat, more or less enriched with fertilizer chemicals. Plants in other plots near by and in the same soil, as well as plants stationed in a good compost made of sods and stable manure, were but slightly injured.

The blight began at the tips of the lower leaves and gradually extended upon these leaves until they became entirely dead and dry, and also progressed upwards on the foliage. The uppermost, rapidly growing parts, remained longest unaffected, but finally all succumbed save the youngest leaves and terminals.

As the blight spread upon the leaves their color for a time was but slightly affected, faint concentric shades permanently marking each day's injury.

Many of the leaves that first suffered were, for a time, sheltered from direct sunshine by intervening healthy foliage.

After careful microscopic search, Dr. Sturgis decided that the injury was due neither to fungi nor bacteria. Samples of the leaves were sent to Dr. B. T. Galloway, U. S. Department of Agriculture, and to Prof. L. H. Bailey, of Cornell University, both of whom pronounced them affected with the burn or sun scald that commonly follows sudden exposure to bright sun following cloudy weather, or results from insufficient water supply to the roots, especially in case of plants which have been accustomed to warm moist air and abundant water.

Before setting the second crop there were added 24 grams of magnesium carbonate and 100 of calcium carbonate with the fertilizers, to plot 9, and 18 pounds of moss peat to plot 11.

Instead of furnishing nitrogen to plot 12 directly in form of nitrate, it was supplied by cotton seed meal mixed with a handful of garden soil to aid nitrification.

On March 6th the blight appeared on plots 9, 10, 11 and 12, and nowhere else in the house. Plot 12 had much less of it than either of the others and the trouble spread much less rapidly than in the case of the first crop. On March 24th, plot 11 showed most scald; plot 12 was almost free from it. Plot 9, which had been kept very wet, was not as badly affected as 10 and 11. On April 18th, just as fruit was beginning to ripen, the scald was much less prevalent than in the first experiment at that stage of growth. Plots 9 and 11 were more injured than 10 and 12, the last named plot being almost exempt. Plots 13 and 14 were not in the least affected, and their foliage was dark green and thrifty through the season.

Note by S. W. Johnson.

The burn or scald, as the blight is commonly designated, is without doubt simply a withering of the leaves due to loss of water by transpiration (surface evaporation), going on more rapidly than its supply can take place through the roots. The result is disorganization and death to the cells and tissues.

This injury began at the tips of the lower leaves for the same reasons that these parts are the first to become yellow or brown, dry and dead, in case of field or garden crops, when the season's growth is approaching a finish. The lower leaves are the oldest, ripest, of least vegetative vigor, and the first to succumb under adverse conditions. Their tips are furthest from the stem through which the water supply must come.

This kind of injury is most commonly observed when direct sunlight suddenly falls on the foliage of plants whose roots and the supporting soil are at a low temperature. Direct sunshine, i.e., warmed and illuminated foliage, immediately and greatly stimulates and increases transpiration, while cold roots are incapable of imbibing and cold stems of transmitting water with rapidity or at all.

In the present instance the blight is reported to have made visible progress under a continuously and densely clouded sky. The blight was also limited to the four plots, 9, 10, 11 and 12. These plots are situated at one end of the plant-house D, where its northeast corner is built into a right angle made by two high walls of the Botanical Laboratory. See Plate I, page 231.

This plant-house faces nearly south and is aired by a row of sashes hinged to the ridge over the south edge of the north bench, and operated as a single ventilator. Because of this situation and construction, south and west winds are arrested, the air is banked up against the adjacent high walls and driven down through the ventilators, falling upon the affected plots as a very noticeable cold current which may chill the benches and lower parts of the plants sufficiently to reduce "root pressure" to the point where it cannot fully supply the loss of water occasioned by transpiration from the upper foliage, the latter being maintained at a relatively high temperature.

The chilling of the benches would occur more readily in rainy or cloudy weather than in dry, with the temperature unchanged, because moist air conducts heat more rapidly than dry air.

INSECT NOTES.

BY W. E. BRITTON.

CANKER WORMS (*Paleacrita vernata*, Peck, and *Anisopteryx pometaria*, Harr.).—Canker worms were extremely numerous in some parts of Connecticut during the spring and early summer of 1896, and injured fruit and shade trees more seriously than for many years.

Many of the elms of New Haven lost a part of their foliage early in the season, the canker worms having nearly finished feeding before spraying operations against the elm-leaf beetle were begun.

On the Station grounds canker worms were abundant on apple, plum, cherry and hickory foliage, and were found feeding on the chestnut and the oak. Many adults were observed about the trunks of these trees during the warm days of November and December, 1895, and most of the injury here was caused by the Fall canker worm, *A. pometaria.*

In Cheshire and elsewhere the foliage of apple orchards was completely ruined. Many farmers apparently failed to notice the presence of the caterpillars until their trees were partially defoliated, and those who then begun to spray were too late to get much benefit.

The two common kinds of canker worms closely resemble each other, but are distinguished by the time of the appearance of the adults or moths. The Fall canker worms reach the adult stage in fall or early winter. Spring canker worms mostly transform to moths in the springtime.

Their habits otherwise are identical, and they may be easily recognized by the manner in which they "spin down" from the tree when they are disturbed.

The larva of the Spring canker worm has only two pairs of abdominal pro-legs, the fifth abdominal segment being smooth. The Fall canker worm larva has three pairs of these legs, one pair being borne upon the fifth abdominal segment. This is the chief difference between the larvæ of the two species.

The females are wingless in both species, and crawl up the trunks of trees to deposit their eggs, clusters of which may be found in the crevices of the bark.

The eggs of both species hatch in spring at the time when trees are leafing out. The caterpillars are of a greenish color at first, and assume a brownish color as they increase in size. In from three to four weeks the caterpillars become full grown, and are then about an inch in length, and of a dark brown color with lines of lighter color running lengthwise, the color as a whole varying considerably. The adult males of both species are moths of an ash-gray color, with indistinct markings of black and white. The wingless females are similar in color. Both species pupate in the ground. See Plate II.

The same methods serve for combatting both species. Obstructions placed about the trunk of the tree, to prevent the wingless females from ascending to lay their eggs, are effectual preventives. Paper or cloth bands covered with tar or printers' ink are commonly used. Metal troughs filled with oil are of service if properly applied and kept clean.

The most satisfactory method of destroying the caterpillars is to spray the foliage with arsenical poison. Some orchardists have found difficulty in killing the caterpillars by spraying, but if they are attaked when young they are easily destroyed. After the tree has been nearly defoliated there is little use in applying poisons.

According to Bailey,* a mixture of 1 lb. of Paris green, 2 lbs. of lime, fresh slacked, and 200 gallons of water gives the best results. Lead arsenate (made by mixing eleven ounces of sugar of lead (lead acetate) and four ounces of arsenate of soda with 150 gallons of water) remains in suspension better than Paris green and is less liable to injure foliage.

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* Cornell Experiment Station, Bulletin 101.

THE ARMY WORM (*Leucania unipuncta*, Haw.).—During the summer of 1896, the Army worm was quite abundant and the cause of much injury throughout Connecticut. A five-acre oat field upon the grounds of the School for Deaf Mutes at Hartford was attacked early in July and stripped of leaves. A portion of the oats were cut, whereupon the worms ate off the heads, leaving nothing but the straw. The writer saw the field on July 9th. The larvæ were then either nearly full grown, or had already pupated. At one place the ground was so covered that every step there would crush ten or twelve of the worms, and the noise of their movement could be distinctly heard. Kerosene oil sprinkled upon them killed the small worms. The full grown larvæ managed to crawl away, though it is doubtful if they transformed and came forth as adults. On July 10th, the writer saw a rye field at Springdale which had been devastated in a similar manner. Most of the worms here had pupated and not so many were seen, though a good illustration of their work remained. Furrows had been plowed around the infested field in order to prevent the larvæ from attacking adjacent grounds. Considerable damage was reported from the vicinity of Stamford and Norwalk.

A second brood appeared early in September. On the 5th, at the farm of Mr. George Bradley of Fair Haven, the writer found the larvæ abundant in all sizes from the newly-hatched to full grown, feeding upon a field of Hungarian grass. Nearly all of these larvæ were parasitized, by a Tachina fly, see *d*, plate III, whose eggs had been deposited just back of the head. These eggs hatch in a few hours and the young grubs make their way into the body of the Army worm, and there feed and develop. The host lives just long enough for the parasites to become full grown and then dies. That the relation proves fatal to the host, was well shown by the fact that of 17 parasitized larvæ collected on September 5th, only 7 were alive on September 9th.

The adult of this insect is a light-brown moth whose spread of wings is about one and three-fourths inches. The insect in all its stages resembles the cut worm, to which it is closely related. Usually its habits are like those of cut worms, except occasionally when it becomes so abundant as to move in armies.

The larva is about one and one-half inches long when full grown, and is without hairs. It is rather dark in color with indistinct stripes of green and white running the full length of

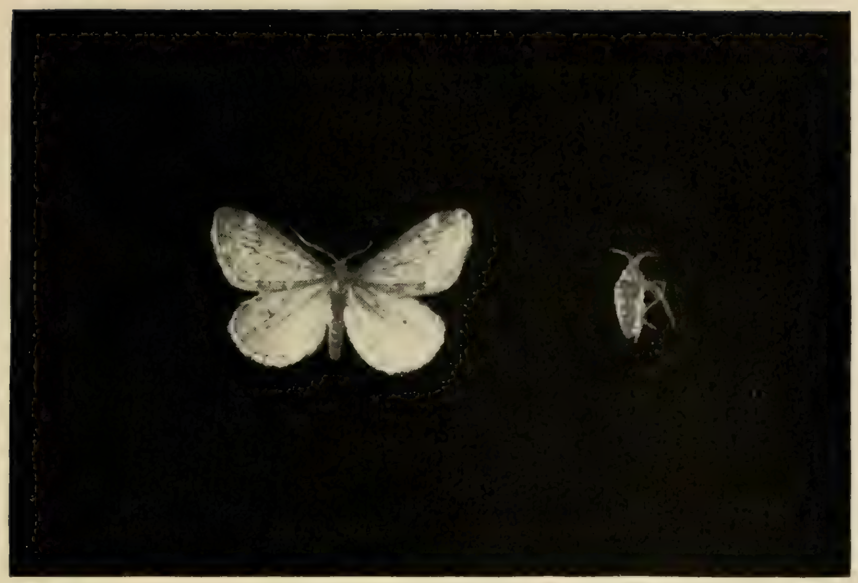

Plate II. Fall Canker Worm, *A. pometaria.*

Adult male and female—natural size (original).

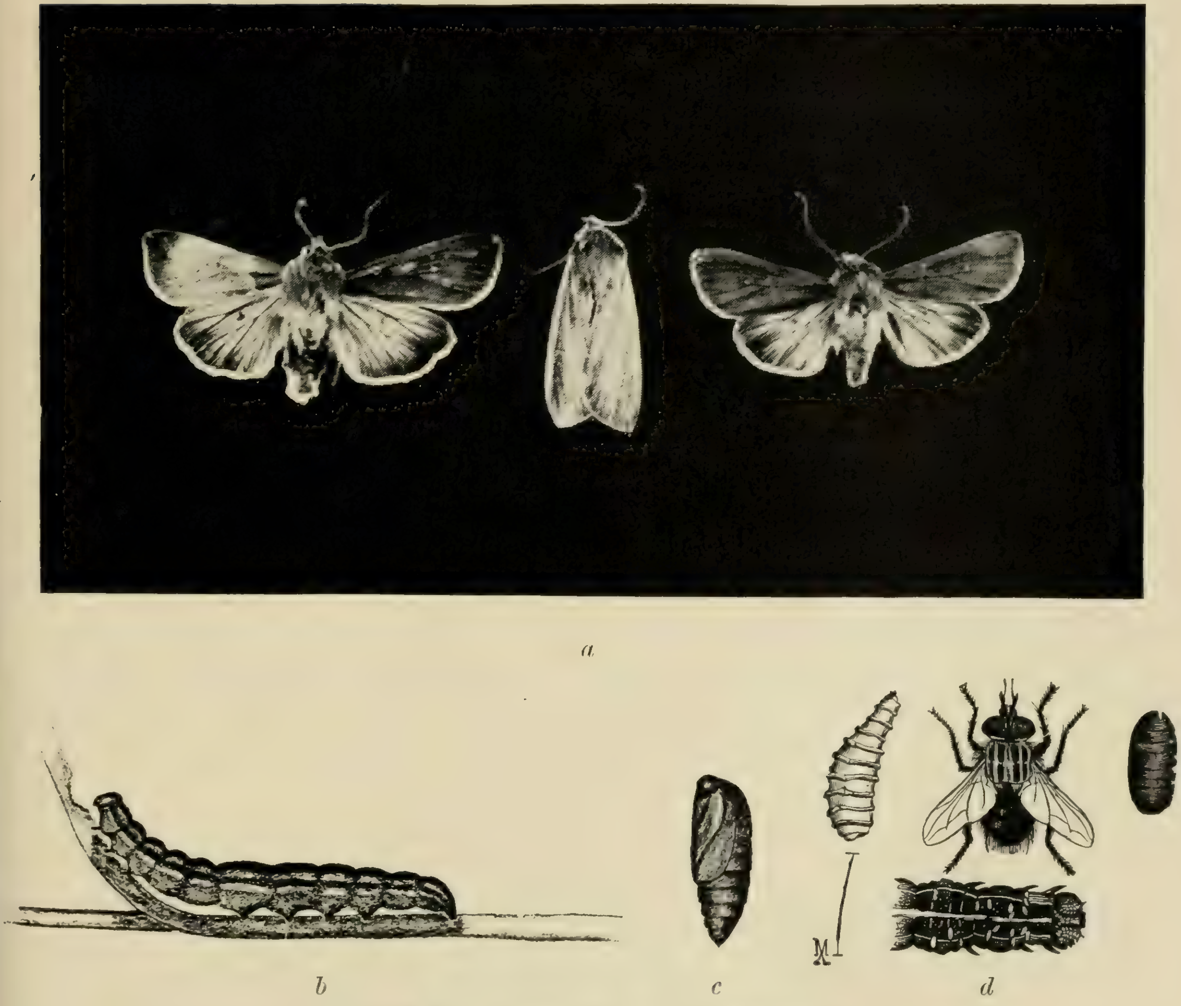

Plate III. Army Worm, *L. unipuncta.*

a, Adults—from photograph; *b*, larva; *c*, pupa—from drawings. All natural size (original).

d, Parasite of Army Worm. (Riley. Circular 4, second series, Division of Entomology, United States Department of Agriculture.)

the body. This is the stage in which the insect is supposed to live through the winter; larvæ of the last brood becoming sluggish when about half grown and concealing themselves in any convenient place of shelter. In the eastern part of Massachusetts, the egg is thought to be the hibernating stage.*

Larva, pupa, and adults, are shown in Plate III.

The eggs are deposited by the adults among the leaves and stubble of grain and grass. It is said that a single female may yield from five to seven hundred eggs.† The eggs hatch in about ten days, and the larvæ feed upon plants of the grass family for about four weeks; they are then full grown and go into the ground to pupate. The pupa is dark brown in color, and about three-fourths of an inch in length. The insect remains in this stage two weeks, then the adult moth appears. There are at least two broods in Connecticut, and probably more. Weed‡ concludes that there are three broods in New Hampshire. During 1896 invasions of the Army worm were reported from Massachusetts, Pennsylvania, New York, New Hampshire, Vermont, Michigan and Iowa. The New York invasion is said to have been one of the worst in the history of that State.§

The treatment commonly recommended is to surround the infested field with a deep furrow having a perpendicular outer edge. The larvæ are unable to ascend, particularly if the surface is smooth, and will fall back into the furrow, where they may be destroyed. A convenient method is to dig holes at short intervals in the bottom of the furrow. The caterpillars in trying to get out will travel along the furrow and fall into the holes, where they may easily be crushed or destroyed with kerosene. The armies usually move in straight lines and enter fields through gate-ways instead of climbing fences. This habit should be taken advantage of in fighting them, for it is often possible to obstruct their progress while occupying only a small corner of a field, and they can then be destroyed much more easily than when scattered over a large area. Poisoning the grass directly in front of the army is also to be advised. In case of an outbreak it is necessary to act quickly, for a delay of a day or two often results in much injury.

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* Mass. Hatch Exp. Station, Bulletin 28.

† Dr. C. V. Riley, Report of Entomologist, U. S. Dep't., Agr'l. Report 1881–2, p. 92.

‡ New Hampshire Agr. Exp. Station, Bulletin 39, p. 67.

§ New York Agr. Exp. Station, Bulletin 104.

It is hardly probable that an attack will occur in 1897. It is seldom that the Army worm is seriously destructive during two successive seasons. Natural enemies usually hold it in check. The great number of parasitized larvæ found in September is an indication that the parasite will be sufficiently abundant to take care of the Army worm the coming season. A dozen eggs were found upon a single larva. These were probably eggs of the Tachina fly, which is perhaps the most important parasite. There is also a bacterial disease that destroys the Army Worm in great numbers, and several species of birds prey upon the larvæ.

CURRANT STEM-GIRDLER (*Phyllœcus flaviventris*, Fitch). — In March a communication was received from Mr. George W. Peabody, of Windham, relative to an insect that injured his currants by cutting off the tips of the new growth about the middle of June. A visit to the field was made June 20th. A half acre of currant ground was infested to such an extent that from fifteen to thirty tips per plant had been cut by the insect. Some of these tips had fallen to the ground, while others still hung in a wilted or dried condition. Mr. Peabody states that his currants have been injured in this manner for four successive seasons, and that on account of the injury he has not been able to obtain good wood for propagation. Another effect is to lessen the crop of the following season by destroying a portion of the fruit-bearing canes.

The work of the insect was also observed in Berlin, Cheshire, Hamden, and New Haven, but in none of these places was the injury as great as at Windham.

The author of the injury is a slender four-winged fly. The adult deposits eggs in the soft new growth, about the middle of June. The ovipositor is thrust about half way through the stem and the egg is usually found in the heart of the tender pith. A few slanting cuts are made in the stem just above the point where the egg is placed, the tip droops and further growth ceases. As the tips become dry and brittle they break off and drop to the ground. The egg is usually found in the center of the stem about three-fourths of an inch below the cut. It is not definitely known whether the egg is deposited before the cut is made or afterwards. The young larva feeds upon the soft pith, and slowly descends inside the stem, becoming full-grown in the autumn. A thin cocoon is then formed, in which the insect passes the winter. In the spring the larva changes to a pupa

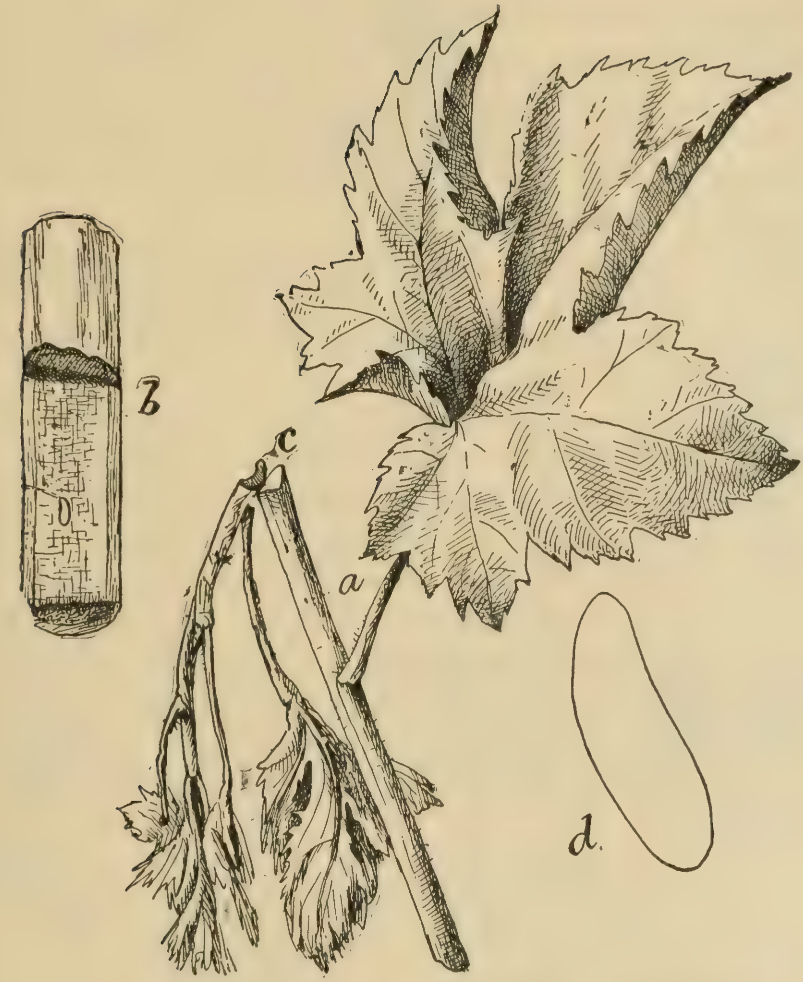

PLATE IV. Currant Stem-Girdler, *P. flaviventris.*

a, Egg puncture: *b*, section of stem, showing egg in pith; *c*, severing of terminal by female; *d*, egg—greatly enlarged. (Marlatt, Insect Life, Vol. VII, Division of Entomology, United States Department of Agriculture.)

and the adult comes forth from the middle to the last of May. The incisions are probably made with the insect's mandibles,* and are from two to three inches below the tip. See Plates IV and V.

This insect is considered to be a native of North America, where it formerly bred in wild currants. During the last four or five years it has attacked cultivated plants, and attention has occasionally been called to it as a destructive insect.

The best treatment is to clip off the young shoots, in June, one or two inches below the point where the incision has been made. The severed portions drop to the ground, dry, and the newly hatched larvæ are thus destroyed.

Gathering and burning the tips of the canes containing the larvæ, in fall or early spring, is the only other remedy that can now be suggested. If this be practiced thoroughly for a few seasons, the injury will be much lessened.

THE FRUIT BARK BEETLE (*Scolytus rugulosus*, Ratz.).—Though the Fruit Bark Beetle or Shot-hole Borer, as it is sometimes called, has been the subject of two notes in previous reports of this Station,† a somewhat different method of attack has been observed the past season, and again the attention of orchardists is called to this destructive insect.

So far, in this State, the greatest injury has been inflicted upon peach trees, but it has also been found upon the plum and cherry. It is known to attack plum, cherry, apricot, peach, pear, apple, quince, and, of ornamental trees, the elm, mountain ash, and European hawthorn.‡

The Fruit Bark Beetle is a native of Europe, and was first noticed in this country at Elmira, N. Y., in 1877. In 1888 it was found in Illinois,§ but had previously been observed by Prof. Atkinson in South Carolina.‖

On June 20th, a visit was made to the orchard of the Connecticut Valley Orchard Co., at Berlin. A few plum and cherry trees in one corner of the orchard, and somewhat removed from other trees, appeared much as if affected with the so-called "fire-blight." Young twigs were dead and the foliage had turned black. Upon examination it was found to be the work of an

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* Insect Life, Vol. VII, p. 387.

† Report of Conn. Agr. Exp. Station, for 1894, p. 142, and for 1895, p. 191.

‡ Illinois Agr. Exp. Station, Bulletin 15, p. 473.

§ Ibid, p. 469.

‖ South Carolina Agr. Exp. Station, Bulletin 4.

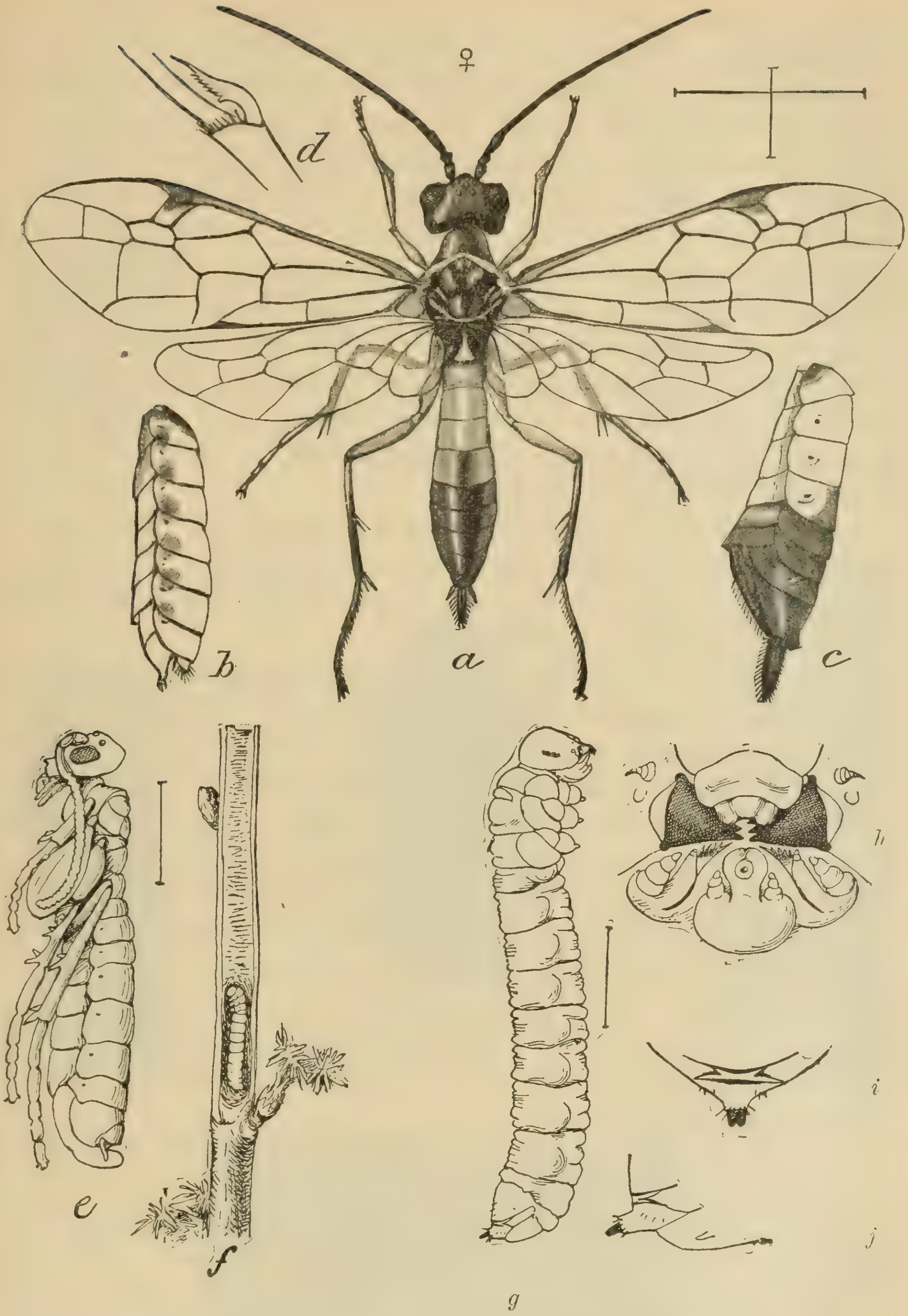

PLATE V. Currant Stem-Girdler, *P. flaviventris.*

a, Adult female; *b*, lateral view of male abdomen; *c*, do. of female; *d*, apex of anterior tibia of female; *e*, pupa; *f*, larva in twig; *g*, larva; *h*, mouth parts of larva; *i*, dorsal view of tip of abdomen; *j*, lateral view of same. (Marlatt, Insect Life, Vols. VI and VII, Division of Entomology, United States Department of Agriculture.)

insect. A large bunch of these infested twigs was brought to this Station and carefully examined. The interior of each twig was eaten out at the base of young shoots of the season's growth, and many twigs had broken over and withered. Small black beetles emerged from the cavities and were unquestionably the cause of the injury. Dr. L. O. Howard kindly identified the insect.

In July a section of wood from a Japan plum tree was sent to this Station by Mr. N. S. Platt, of Cheshire. This was wrapped in paper and placed in the laboratory. The writer collected over sixty beetles which emerged from a portion of the wood scarcely ten inches long and two inches thick. Some bored through the paper wrapping and escaped, so that the number which actually came from the wood is not known.

This insect and its work are shown in Plate VI. The insect passes the winter in the larval stage under the bark.

According to Prof. J. B. Smith,* the life history of the Fruit Bark Beetle is briefly as follows :

"The black parent beetles appear in early spring, and bore little round holes through the bark to the sap-wood. There they make a central burrow, on each side of which little notches are made to receive the soft white eggs. The larvæ hatch very soon, and at once begin to make little burrows of their own, diverging as they move from the parent channel, and gradually enlarging them as they increase in size. When full grown they form a slightly enlarged chamber, in which they pupate, and when they transform to beetles make their way out through little round holes in the bark. The whole period of development does not exceed a month, and there may be several broods during the summer from the same tree, the numerous galleries eventually girdling and killing it."

Usually only trees are attacked which are diseased or have in some way become weakened.

Troop states† that he has observed the injury on trees that apparently were perfectly healthy.

Trees badly infested should at once be destroyed. If the attack is only slight the tree can probably be saved by spraying the trunk and branches with Bordeaux mixture or whitewash to which a little Paris green has been added. This treatment has

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* Economic Entomology, p. 238, 1896.

† Purdue Univ. Agr. Exp. Station, Bulletin 53, p. 128.

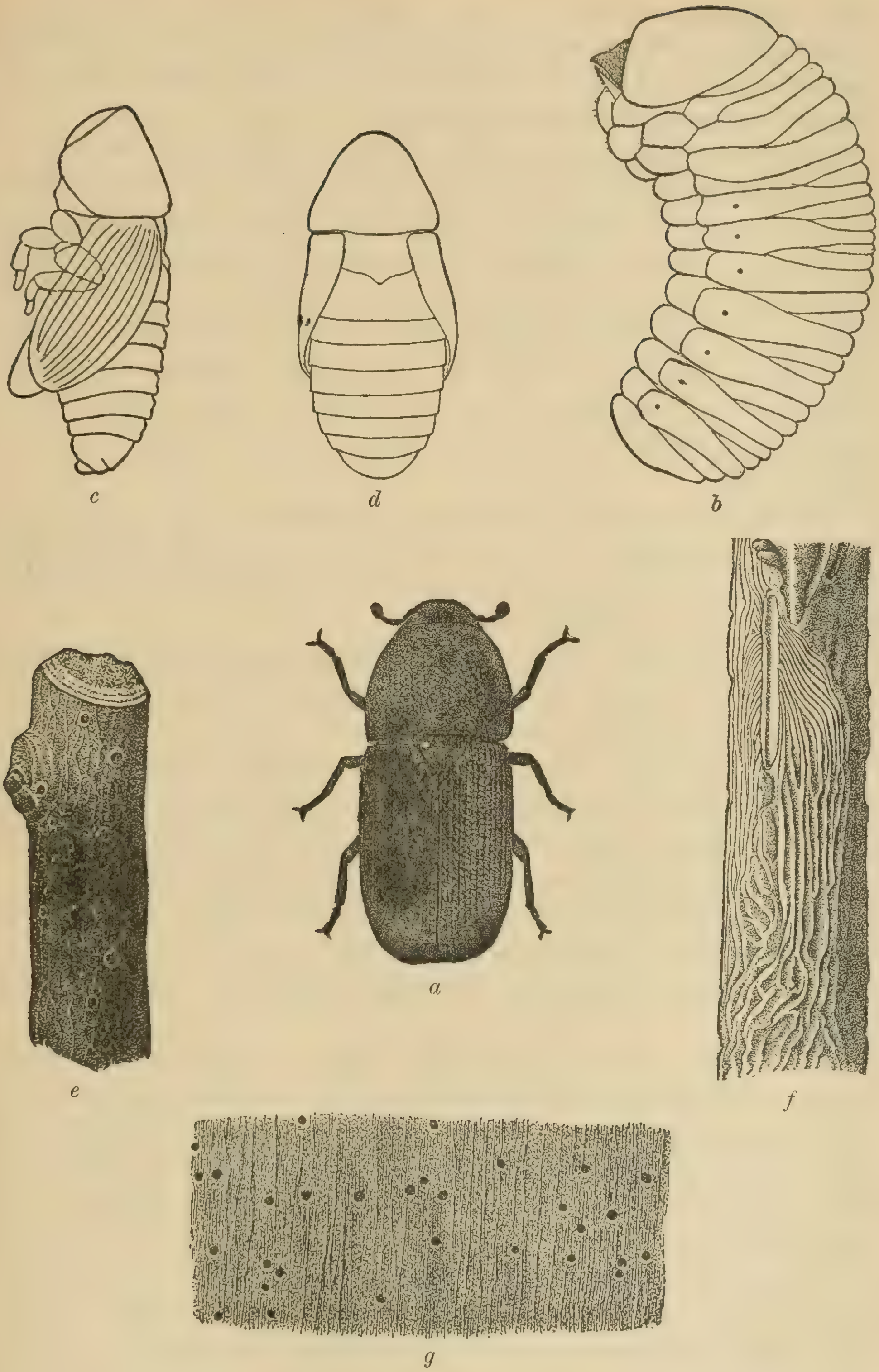

PLATE VI. Fruit Bark Beetle, *S. rugulosus.*

a, Adult; *b*, larva; *c*, *d*, pupæ—greatly enlarged; *e*, branch of peach, showing perforations; *f*, branch with bark removed, showing tunnels; *g*, perforations in large branch of plum. (Forbes, Bulletin 15, Illinois Agri. Exp. Station.)

been reported effectual by some experimenters. As the most vigorous trees are usually exempt from attack, anything that will promote health is to be recommended. Good cultivation and liberal fertilizing are safe preventives.

THRIPS (*Heliothrips cestri*, Pergande).—Hothouse cucumbers are sometimes infested with small insects about one-twentieth of an inch long, that jump or fly about with great agility and are known as "thrips." They are sometimes found upon other plants such as the Fuchsia, Gardenia, Hydrangea, and Chrysanthemum. On cucumber plants, the "thrips" are usually found upon the under side of the leaves. A spotted appearance slightly different from that caused by "red spider" is an indication of the presence of the insect. The infested leaves finally turn yellow and die.

Specimens collected in the Station greenhouse were sent to the U. S. Department of Agriculture and pronounced *Heliothrips cestri*, by Mr. Pergande, Assistant Entomologist, who had previously named and described it.*

Experience in the Station greenhouses, shows that the insect can be kept in check by fumigating occasionally with tobacco. Contact with kerosene emulsion proves fatal to it.

During the winter Mr. T. J. Stroud, of Shaker Station, wrote that the "thrips" were injuring his cucumber plants. An application of kerosene emulsion was advised and proved successful. Most of the insects were killed by a single application.

ASPARAGUS BEETLE (*Crioceris asparagi*, Linn.).—The asparagus beetle was unusually abundant last season in this vicinity, and the larvæ injured the asparagus plants by devouring the foliage.

The beetle is about a quarter of an inch in length, and of black color with red and yellow markings. It is in this stage that the insect passes the winter; in the spring the female eats holes and lays eggs in young asparagus shoots. As soon as the eggs hatch the young larvæ commence to feed upon the tender shoots. The larva is a slug of grayish color with black head and brown legs.

A later brood attacks the full-grown plants, but if these are sprayed with Paris green or lead arsenate, serious injury will be prevented. Hellebore is said to be effectual. Any fine powder dusted upon the plants will tend to asphyxiate the larvæ by closing their breathing pores. This treatment is good to hold the insect in check.

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* Insect Life, Vol. VII, pp. 390–395.

Comstock writes*: "Where this pest occurs care should be taken to destroy all wild asparagus. This will force the beetles to lay their eggs upon the shoots that are cut for market; the larvæ hatching from such eggs will not have a chance to mature."

The asparagus beetle came from Europe about 1859. It first appeared in the vicinity of New York, where it became very troublesome and soon extended to other states.

There are several broods during the season.

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* Manual for the Study of Insects, p. 576, 1895.

EXPERIMENTS ON THE PREVENTION OF POTATO-SCAB.

By Wm. C. Sturgis.

Having demonstrated by the result of the experiments of the past two years the feasibility of securing, by the use of corrosive sublimate, a practically clean crop of tubers from seed however scabby, providing only that the seed be planted on land not infested with the scab-fungus, and be fertilized with fertilizer chemicals, it seemed advisable to test the efficacy of certain other fungicides, notably sulphur, which gave good results in New Jersey, and a material known as "Lysol" and highly recommended in Europe as a germicide. As obtained from Messrs. Eimer & Amend of New York City, lysol is a heavy brownish liquid with a strong odor of creosote. It mixes readily in water, and when so mixed forms a cloudy, opalescent liquid resembling dilute soap-suds.

In France and Germany it has been recommended as a powerful antiseptic, neither corrosive nor toxic in dilute solutions, of stable composition, and superior to all others for disinfecting wounds, surgical instruments, buildings, etc.* For such purposes ½%–5% solutions are used. As long ago as 1893, French experiments proved the efficacy of 2% solutions of lysol in preventing the invasion of mushroom beds by parasitic fungi; † later it came into prominence as an insecticide, particularly in the case of plant-lice and slugs.* Solutions of ¾%–2% proved thoroughly efficacious in destroying not only soft-bodied insects such as plant-lice, but even scale-insects, and that without damage to the plant even in 2% solutions.‡ For the closing of wounds on trees, and assisting the natural healing process, lysol in a 5% solution is said to be far superior to tar or grafting-wax.‡ Finally it is stated repeatedly that ½%–1% solutions will prevent the mildew of roses and grapes as effectively and more cheaply than Bordeaux mixture, and without damage to the plants.§ As compared with Bordeaux mixture, lysol has the advantage, according to a French writer,§ of being a combined insecticide and fungicide 28% cheaper than Bordeaux mixture, and he estimates that the substitution of lysol would mean an annual gain to the vineyardists of France of 15,000,000 francs ($3,000.000).

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* Revue Mycologique, XVII–68, p. 184, Oct. '95.

† Cf. Rev. Myc., XVI–62, pp. 61 & 62, Apr. '94.

‡ Zeitschrift für Pflanzenkrankheiten, V–4, pp. 252 & 253, '95.

§ Cf. Centrabl. für Bakteriologie, Parasitenkunde, u. Infektionskrankheiten, II–4, pp. 133 & 134, '96.

If these statements are trustworthy, and we have no reason to suppose the contrary, we have in lysol an agent of extreme value in the treatment of plant-diseases, one well worthy of repeated trial. The successful preparation of Bordeaux mixture assumes some skill and judgment on the part of the operator, time is unnecessarily consumed, and in inexperienced hands the application is often incomplete and unsatisfactory. Lysol, on the other hand, is a liquid; it mixes readily and immediately with water; in applying it there is none of the inconvenience caused by a clogged nozzle. The cost of lysol is a matter for serious consideration. It is retailed in New York in pint bottles at 60 cts. a pound (1 pint). This quantity is sufficient to make 25 gallons of a ½% solution. With copper sulphate at 6 cts. per lb., and lime at $1.65 per bbl. and using the 6–4–50 formula, Bordeaux mixture costs about 20 cts. for 25 gallons. Allowing for the addition of Paris green at 25 cts. per lb., in the proportion of 1 lb. to 100 gallons of the Bordeaux mixture, the latter will cost about 32 cts. for 25 gallons, as compared with 60 cts. for the same quantity of a ½% lysol solution. This can hardly be reconciled with the statement made by the French writer above referred to, regarding the relative cheapness of lysol. His figures, however, are based upon a much lower price of the pure material. Lysol is sold in cans in Paris at 2 francs per kilo (2.2 lbs.), or about 18 cts. per lb. as compared with 60 cts. per lb. in New York. At the latter figure the use of lysol as a fungicide is practically prohibited except by way of experiment. Nevertheless the statements concerning its value are so unqualified that a careful test of its properties seemed advisable.

It was decided to make the test upon potato-tubers either themselves infested with scab or planted in soil so infested. This seemed to promise the fairest basis for conclusions, since the treatment for potato-scab at present in use is antiseptic in character, and it is as an antiseptic that lysol is especially recommended. An experiment in continuation of those of previous years, to test the value of corrosive sublimate in this connection, had also been planned, and the use of the two materials side by side would, it was thought, give a fair basis of comparison. As regards the comparative cost of the two, the small amount of material used in treating seed potatoes as compared with any method involving the spraying of plants, makes a difference in the price of the crude materials hardly worth considering. As a matter of fact however, lysol is again seen to be the more expensive. Twenty-five gallons of a corrosive sublimate solution, with that chemical selling for 10 cts. per oz. and used in the proportion of 2¼ oz. to 15 gallons of water, cost about 42 cts. as compared with 60 cts. in the case of lysol.

Four sets of experiments were undertaken in different localities and under various conditions to test the value of chemicals in preventing scab. Of these experiments one had to do with ascertaining the susceptibility to scab of various root-crops and the efficacy of treating the soil in order to free it from the germs of the scab-fungus. Another had for its aim a comparison of corrosive sublimate and lysol as preventives of scab upon potatoes. The remaining two involved other questions, the comparative efficiency of lysol being merely incidental. We will therefore consider first the second of the experiments mentioned above.

Experiment I.

The Comparative Value of Corrosive Sublimate and Lysol in preventing Scab upon Potatoes.

This experiment was conducted on the Station grounds upon a piece of land which had not recently borne either potatoes or root-crops, and was therefore presumably free from the scab fungus. The seed used was completely infested with scab. It had been stored in a warm, fairly dark cellar, and by May 8th, the date of planting, all of the tubers had sprouted. The sprouts on some of the tubers were short, stocky and green; those on the remainder were from four to eight inches long, spindling and etiolated. Leaf-buds were beginning to start on some of the sprouts. The tubers were washed, divided into five lots and treated as follows:

Lot 1. Soaked in 1% Lysol solution, 1½ hours.
Lot 2. Soaked in ½% Lysol solution, 1½ hours.
Lot 3. Soaked in $\frac{1}{10}$% Lysol solution, 1½ hours.
Lot 4. Soaked in Corrosive Sublimate solution (1 oz. to 6 galls.), 1½ hours.
Lot 5. No treatment. (Check.)

After treatment the seed potatoes were spread out to dry, the effect of the solutions, especially on the sprouts, was noted, and the tubers were then cut and planted as usual.

The external effect of the lysol was very marked. In the case of the two stronger solutions the etiolated sprouts were colored pale brownish-red or pink, especially where bruised or cut, and the same color was observable in the liquid after the tubers were removed. The green, stocky sprouts were uninjured except that the young leaf-buds were blackened. The surface of the tubers themselves showed no sign of injury. With the $\frac{1}{10}$% solution, although it showed a discoloration similar to that observed in the other two after contact with the tubers, the latter were uninjured even when the sprouts were long and etiolated and showed green leaf-buds. With the corrosive sublimate, as was expected from the results of the experiment of last year, no injury was observable on the sprouts.

Observations made on the growth of the plants showed no very marked irregularities, except in the case of the seed treated with 1% lysol. The plants in this row were three or four days later in appearing above ground than any of the others, a few hills failed entirely, and the crop was light and composed of very small tubers. The 1% solution of lysol had evidently done serious injury to the seed. It is possible that the result would have been different had the seed-tubers not been sprouted.

Potato-bugs began work early and in great numbers, thus giving abundant opportunity for testing the insecticidal qualities of lysol. Each of the three rows in which the seed had been treated with lysol were sprayed twice with lysol of the same strength as that used on the seed. The spray was applied in sufficient quantity to drench the plants but produced no perceptible diminution in the number of bugs. Colonies of young, soft-bodied bugs were soaked with the 1% solution without apparent injury, and the lysol was therefore discontinued after the second spraying, and a dry Bordeaux mixture prepared by Messrs. Hotchkiss Bros. of Wallingford and mixed with Paris green, was substituted. This checked the bugs in a measure, but the vines had been injured beyond recovery and died three weeks before those on the two adjoining rows. Of these two, the row which had been reserved as a check was dusted twice with the dry Bordeaux mixture mentioned above, mixed with Paris green. By this means the plants were kept comparatively free from bugs, but early in August the "early blight" appeared, and though a spray of the Bordeaux mixture was at once substituted for the dry form, the blight spread slowly and eventually destroyed the vines. On the remaining row treated with corrosive sublimate, Bordeaux mixture made according to the usual formula was used from the beginning. Three applications were made, the vines remained free from bugs throughout the season, and showed only a few traces of blight.

The potatoes were all dug Aug. 28th. The general lack of vigor on the part of the plants, shown by their short period of growth and poor returns, was doubtless due in large measure to the character of the seed which, besides being covered with scab, had given up much of its remaining vitality to the sprouts; while the latter, grown largely in the dark, were unfit to produce plants of much vigor. After being dug, the potatoes from each row were separated into three grades depending upon the amount of scab present upon them. The results are shown in the following table:

Table I. Comparative Efficiency of Lysol and Corrosive Sublimate as Preventives o Potato-Scab.

	Treatment.	First Quality.	Second Quality.	Third Quality.	Total Yield
Row 1	Not treated, Check	7 lbs. 5 oz.=32%	11 lbs. 4 oz.=49%	4 lbs. 8 oz.=19%	23 lbs. 1 oz.
Row 2	Lysol, $\frac{1}{10}$%	10 lbs. 14½ oz.=40%	11 lbs. 14½ oz.=44%	4 lbs. 7½ oz.=16%	27 lbs. 4½ oz
Row 3	Lysol, ½%	9 lbs. 3 oz.=55%	6 lbs. 3½ oz.=38%	1 lb. 3 oz =7%	16 lbs. 9½ oz
Row 4	Lysol, 1%	13 lbs. 10 oz.=78%	3 lbs. 14½ oz.=22%	0	17 lbs. 8½ oz
Row 5	Corrosive Sublimate, ½ oz. to 3 galls.	25 lbs. 12½ oz.=89%	3 lbs. 5½ oz.=11%	0	29 lbs. 2 oz.

The advantage attending the use of corrosive sublimate under the conditions outlined above, viz.: when the seed itself presents the only source of contagion, is seen at a glance. Notwithstanding the fact that Row 5 was only 39 ft. long as compared with 54 ft. in the case of the other rows, it shows the highest total yield. This is to be attributed rather to the preservation of the vines by means of Bordeaux mixture than to the treatment of the seed, but it is of interest in that connection. As to the immediate effect of the treatment of the seed, the only row which shows an approach to the good results obtained from the use of corrosive sublimate, is that treated with 1% lysol solution. Neither row shows any very scabby tubers in the crop and the lysol produced only 11% less tubers of first quality and 11% more tubers of second quality than did the corrosive sublimate. But we have already seen indications that lysol of a concentration stronger than $\frac{1}{10}$% injures seed-potatoes, those at least which have sprouted before treatment. These indications are borne out by the results, the crop resulting from the use of $\frac{1}{10}$% lysol being much greater than that obtained with the stronger solutions, and only slightly less than that secured with corrosive sublimate. As to the quality of the crop it will be seen that the percentage of first-quality tubers increases, and the percentage of second and third-quality tubers decreases, with the increased strength of the lysol solution; and this ratio holds good throughout the series, the check row showing returns of the poorest quality, the corrosive sublimate row showing the best, and the lysol increasing in efficacy with the strength of the solution.

From the results thus obtained we may summarize our conclusions as follows:

(1) Corrosive sublimate continues to hold its own as a preventive of potato-scab in cases where the seed is the only source of contagion.

(The results obtained in this instance are very remarkable considering the fact that the seed used was so completely infested with scab that not a single tuber showed a square inch of clean surface.)

(2) As a preventive of potato-scab lysol is distinctly inferior to corrosive sublimate. A solution of $\frac{1}{10}$% is not sufficient to secure disinfection of the seed, while solutions of $\frac{1}{2}$% and 1% injure the seed, at least when the latter is sprouted, and therefore lessen the crop very materially.

(3) As an insecticide, in the case of potato-bugs, lysol possesses little value as compared with Paris green, and is besides much more expensive.

(4) As a fungicide lysol fails to check the early blight of potatoes.

(5) Dry Bordeaux mixture mixed with Paris green and dusted on potato plants, is inferior both as a fungicide and an insecticide, to Bordeaux mixture used as a liquid spray.

EXPERIMENT II.

The Comparative Value of Corrosive Sublimate, Lysol, and Sulphur in preventing Scab upon infested Land.

This experiment was conducted at South Manchester on land occupied for the past two years by potatoes. The piece of land selected was a portion of Plot B of last year's experiment. This plot produced a crop of which 75% was scabby; the soil was therefore presumed to be thoroughly infested with the fungus. It was divided into two equal parts, on one of which scabby seed was used and on the other clean seed. A blank space, ten feet wide, separated the two portions. The potatoes were planted in twelve rows each 20 feet long, and before being cut and planted received the following treatment:

Row 1. Washed in water. Check.
Row 2. Soaked 1½ hours in Lysol solution, $\frac{1}{10}$%.
Row 3. Soaked 1½ hours in Lysol solution, ½%.
Row 4. Soaked 1½ hours in Lysol solution, 1%.
Row 5. Washed. Rolled in Sulphur. Sulphur sown in each hill.
Row 6. Soaked 1½ hours in Corrosive Sublimate solution, ½ oz. to 2½ galls.

Rows 7–12 inclusive received the same treatment respectively, but reversed in order of planting.

Rows 1–6 were planted with seed free from scab; rows 7–12 with scabby seed.

The experiment was expected to give additional information on the following points:

1. The effect of planting clean seed and scabby seed, not treated, on scabby land. (Rows 1 and 12.)
2. The effect of treating clean seed and scabby seed with lysol solutions of different concentrations. (Rows 2–4 and 9–11.)
3. The same, sulphur being used as the disinfecting agent.
4. The same, corrosive sublimate in solution being used.

The clean potatoes were treated, cut and planted on May 15th, the scabby potatoes on May 18th. No visible injury resulted from any of the lysol solutions. On June 5th the plants in the two check-rows, the rows treated with sulphur and those treated with the two weaker solutions of lysol, were appearing above ground. The remaining rows started two days later, but all grew rapidly and at the close of the season showed no perceptible difference in vigor. Paris green served to check the potato-bugs, and though the early blight appeared, the attack was not sufficiently severe to impair the results. On September 14th one-half of each row was dug; the rest remained untouched until October 20th in order to test the possible advantage of early digging in cases where scab had already attacked the crop.

The results obtained September 14th are given in the following table:

TABLE II. CORROSIVE SUBLIMATE, LYSOL, AND SULPHUR AS PREVENTIVES OF POTATO-SCAB ON INFESTED LAND. SEPT. 14TH.

	Treatment.	1st Quality.	2d Quality.	3d Quality.	Total Yield.	
Row 1	No treatment Check	8 lbs.=44%	7 lbs.=39%	3 lbs.=17%	18 lbs.	Clean Seed.
Row 2	Lysol, $\frac{1}{10}$%	5 lbs.=50%	3.5 lbs.=35%	1.5 lbs.=15%	10 lbs.	
Row 3	Lysol, ½%	7 lbs.=52%	4.5 lbs.=33%	2 lbs.=15%	13.5 lbs.	
Row 4	Lysol, 1%	6 lbs.=75%	2 lbs.=25%	0	8 lbs.	
Row 5	Seed rolled in Sulphur Sulphur in hills	10 lbs.=65%	5.5 lbs.=35%	0	15 5 lbs.	
Row 6	Corrosive Sublimate, ½ oz. to 3 galls.	14 lbs.=85%	2.5 lbs.=15%	0	16.5 lbs.	
Row 7	Corrosive Sublimate, ½ oz. to 3 galls.	8 lbs.=70%	3.5 lbs.=30%	0	11.5 lbs.	Scabby Seed.
Row 8	Seed rolled in Sulphur Sulphur in hills	8 lbs.=64%	3.5 lbs.=28%	1 lb.= 8%	12.5 lbs.	
Row 9	Lysol, 1%	2.5 lbs.=31%	4 lbs.=50%	1.5 lbs.=19%	8 lbs.	
Row 10	Lysol, ½%	4.5 lbs.=50%	3 lbs.=33%	1.5 lbs.=17%	9 lbs.	
Row 11	Lysol, $\frac{1}{10}$%	6 lbs.=46%	5 lbs.=39%	2 lbs.=15%	13 lbs.	
Row 12	No treatment Check	3 lbs.=26%	6.5 lbs.=57%	2 lbs.=17%	11.5 lbs.	

Comparing the general results as obtained from the scabby and from the clean seed, it is seen that the scabby seed produced decidedly the smaller crop, the difference between the total yields being 16 pounds. This difference can only be explained on the supposition that seed-potatoes infested with scab not only endanger the crop as regards quality, but are less vigorous and consequently less productive than clean seed. A comparison between Rows 1 and 12 illustrates these facts regarding the inferior quantity and quality of tubers produced from scabby seed.

As regards the effect of the lysol solutions little need be added to the comments in this connection on experiment No. 1. Essentially the same facts are revealed in both experiments. The 1% solution (Rows 4 & 9) has unmistakably diminished the yield, while the weaker solutions, though far better than nothing, are decidedly inferior in efficiency to corrosive sublimate (compare Rows 2 & 3 with Row 6, and Rows 10 & 11 with Row 7). It is quite possible however, that another factor in the use of lysol, disregarded in both of these experiments, may prove an important one. The duration of the treatment was the same in all cases 1½ hours, and it is quite possible that the 1% solution allowed to act for a shorter period might prove as effective in sterilizing the seed without at the same time diminishing its vitality. In view of the non-poisonous character of lysol and the convenience attending its use, it certainly seems worthy of further trial.

The use of sulphur as a preventive of potato-scab was recommended by Halsted.* According to one experiment conducted by him in 1895 on the College Farm, sulphur used at the rate of 300 pounds per acre (the seed being rolled in the sulphur and the remainder sprinkled in the rows) "kept off the scab almost completely, where the standard remedy, namely, corrosive sublimate, tested in four strengths, all failed absolutely to show any less scab than the check-belts" (almost 100%). The land used in this experiment is stated to have been in cabbages the year before, but no information is given as to the character of the soil with regard to the scab fungus. In another experiment, planned by Prof. Halsted, the land used was known to be thoroughly infested with scab, yet in this case the highest percentage of scab obtained in connection with corrosive sublimate (applied to the land at the rate of 120 pounds per acre) was only 5%, and this was reduced to 1% where the usual method of soaking the seed in a solution of the poison had been followed. On the other hand, with sulphur used upon the seed before planting, the crop showed 5% of scabby tubers, and this was reduced to 1% when the sulphur was applied to the land at the rate of 300 pounds and 150 pounds per acre. In this second experiment the stand was very seriously reduced where the corrosive sublimate was applied to the land, while sulphur applied in the same way at the rates above-mentioned gave a full stand. Inasmuch however, as corrosive sublimate applied in the usual way to the seed gave a full crop, the results would seem merely to indicate that soil applications of the sublimate are not to be recommended, but that when applied to the seed it is quite as efficient as sulphur applied to the land and more efficient than sulphur applied to the seed. Moreover it would be manifestly impracticable to use corrosive sublimate costing 10 cents per ounce, at the rate of even 30 pounds to the acre, when better results can be secured for the same area by the use of a few ounces dissolved in water. Sulphur is of course much cheaper, costing, by the barrel of 150 pounds, 2 cents per pound, or $3.00 per barrel, but even this is more expensive per acre than the corrosive sublimate solution as commonly used.

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* N. J. Agric. Exper. Sta., Rep. for 1895, pp. 270–275.

With the view of testing this matter sulphur was used in two rows of Experiment No. 2 at South Manchester, and the results compared with those obtained with corrosive sublimate. The seed for each row, after being washed, was rolled in one pound of sulphur (730 lbs. per acre), dropped in the row, and then the remainder of the sulphur was scattered in the open row. As already noted, the seed started quickly and grew well. The yield was practically the same as that from the check rows and from the rows treated with sublimate. Reference to the table on page 253 shows that for both the clean and the scabby seed the sublimate has the advantage of the sulphur as regards the quality of the crop, in the first case by 20%, and in the second by 6%. (Rows 5 & 6, 7 & 8.) Again the corrosive sublimate treatment proves superior, as a preventive of potato-scab, to any other material used. In the case of clean seed it reduced the amount of scab on the crop by 41%, in the case of scabby seed by 44%, and that, without any material diminution in the quantity of the crop. Considering both quantity and quality of the yield, it is superior to sulphur, its nearest rival, and is moreover cheaper on a large scale. The results obtained from that portion of the crop which was allowed to remain in the ground until Oct. 20th, and a comparison between those results and the condition of the crop a month earlier, are given in the following tables.

TABLE III. CORROSIVE SUBLIMATE, LYSOL, AND SULPHUR AS PREVENTIVES OF POTATO-SCAB ON INFESTED LAND. OCT. 20TH.

	Treatment.	1st Quality.	2d Quality.	3d Quality.	Total Yield.	
Row 1	0	7.5 lbs.=68%	3 lbs.=28%	0.5 lb.=4%	11 lbs.	Clean Seed.
Row 2	Lysol $\frac{1}{10}$%	8 lbs.=59%	4 lbs.=30%	1.5 lbs.=11%	13.5 lbs.	
Row 3	Lysol $\frac{1}{2}$%	7.5 lbs.=71%	3 lbs.=29%	0	10.5 lbs.	
Row 4	Lysol 1%	7.5 lbs.=79%	2 lbs.=21%	0	9.5 lbs.	
Row 5	Sulphur	10.5 lbs.=75%	3.5 lbs.=25%	0	14 lbs.	
Row 6	Corrosive Sublimate	11.5 lbs.=78%	3 lbs.=20%	0.25 lb.=2%	14.75 lbs.	
Row 7	Corrosive Sublimate	10.5 lbs.=78%	3 lbs.=22%	0	13.5 lbs.	Scabby Seed.
Row 8	Sulphur	6 lbs.=55%	5 lbs.=45%	0	11 lbs.	
Row 9	Lysol 1%	5 lbs.=53%	4 lbs.=42%	0.5 lb.=5%	9.5 lbs.	
Row 10	Lysol $\frac{1}{2}$%	6 lbs.=52%	5 lbs.=44%	0.5 lb.=4%	11.5 lbs.	
Row 11	Lysol $\frac{1}{10}$%	5 lbs.=40%	5 lbs.=40%	2.5 lbs.=20%	12.5 lbs.	
Row 12	0	4.5 lbs.=46%	5 lbs =51%	0.25 lb.=3%	9.75 lbs.	

TABLE IV. COMPARATIVE RESULT OF LATE AND EARLY DIGGING ON THE QUALITY OF POTATOES EXPOSED TO SCAB.

Row.	Sept. 14. Total Scabby.	Oct. 20. Total Scabby.	Difference.	
1	56%	32%	−24%	
2	50%	41%	− 9%	
3	48%	29%	−19%	
4	25%	21%	− 4%	
5	35%	25%	−10%	
6	15%	22%	+ 7%	
7	30%	22%	− 8%	
8	36%	45%	+ 9%	
9	69%	47%	−22%	
10	50%	48%	− 2%	
11	54%	60%	+ 6%	
12	74%	54%	−02%	

These results are wholly unexpected and can not at present be explained. In only three cases do the figures show an increase of scab as a result of allowing the tubers to remain in the ground, and the increase is comparatively slight. On the other hand, the decrease in the amount of scab is very marked, especially in Rows 1 and 12, where the tubers were not protected by any fungicide whatever. Such facts could be explained only upon the supposition that the amount of scab-fungus in the soil, or its virulence, experienced a remarkable decrease and permitted the effects of earlier attacks to become in a measure obliterated. But such a supposition seems contrary to both reason and experience. Leaving then this question unsettled to await further elucidation, we may summarize the results of Experiment II as follows:

(1) Where the soil is infested with scab-fungus the crop of tubers will be seriously diseased if no preventive treatment is applied. The disease will be further aggravated under such conditions by the use of scabby seed. The use of infested land for potatoes should therefore be discountenanced.

(2) Lysol used in 1% solution injures the seed when the latter is allowed to remain one and a half hours in contact with it. Weaker solutions are almost inoperative when used upon either clean or scabby seed planted on infested land.

(3) Sulphur is an unsatisfactory preventive of potato-scab, no matter what the quality of the seed, when the soil is infested. It further tends to roughen the surface of tubers growing in contact with it.

(4) Of the three fungicides used, corrosive sublimate is the only one which can be recommended as a preventive of potato-scab. Its efficiency is diminished by the presence of the fungus in the soil.

(5) Infested land is to be avoided in planting potatoes. If its use is unavoidable, the selection of clean seed and treatment of the same with corrosive sublimate will enhance the value of the crop.

EXPERIMENT III.

The comparative effect of Fresh and Composted Manure in favoring the development of potato-scab, and the comparative value of Corrosive Sublimate, Lysol and Sulphur in preventing scab upon clean land.

This experiment was conducted at South Manchester upon a piece of land which had not recently borne potatoes and was presumably free from infection. In testing the effect of manure, clean seed was used without previous treatment in order to have only the one source of contagion. In testing the fungicides, scabby seed was used in connection with commercial fertilizers, the contagion being thereby introduced on the tubers only.

The rows were arranged as follows, each row being 63 feet long:

Rows 1 and 2. Clean seed, fertilized with fresh barnyard manure.
Rows 3 and 4. Clean seed, fertilized with composted barnyard manure.
Row 5. Scabby seed, soaked for 1½ hours in $\frac{1}{10}$% lysol solution.
Row 6. Scabby seed, soaked for 1½ hours in ½% lysol solution.
Row 7. Scabby seed, soaked for 1½ hours in 1% lysol solution.
Row 8. Scabby seed, soaked for 1½ hours in corrosive sublimate solution (½ oz. to 3 galls.).
Row 9. Scabby seed, rolled in 1 lb. sulphur (230 lbs. per acre), remainder sprinkled in row.
Row 10. Scabby seed, no treatment. Check.

The manure was used liberally; one-half of it was first scattered in the open rows, the seed was then dropped upon it and pressed down, the rest of the manure was then scattered and the earth drawn over it. By this means direct contact was secured between the seed and the manure both above and beneath.

As in Experiment II, one-half of each row was dug Sept. 14th and the remainder Oct. 20th. The results of the first digging are presented in the following table:

TABLE V. EFFECT OF MANURE AND OF FUNGICIDES UPON THE PREVALENCE OF POTATO-SCAB ON CLEAN LAND. SEPT. 14TH.

Row.	Treatment.	1st Quality.	2d Quality.	3d Quality.	Total Yield.	
1 and 2	Fresh Manure No treatment	7 lbs.=27%	11 lbs.=42%	8 lbs.=31%	26 lbs.	Clean seed
3 and 4	Composted Manure No treatment	14.5 lbs.=40%	14 lbs.=38%	8 lbs.=22%	36.5 lbs.	
5	Lysol, $\frac{1}{10}$%	8.5 lbs.=68%	3.5 lbs.=28%	0.5 lb.=4%	12.5 lbs.	Scabby seed
6	Lysol, ½%	9 lbs.=68%	4 lbs.=30%	0.25 lb.=2%	13.25 lbs.	
7	Lysol, 1%	6 lbs.=72%	2 lbs.=25%	0.25 lb.=3%	8.25 lbs	
8	Corrosive Sublimate	13 lbs.=88%	1.5 lbs.=10%	0.25 lb.=2%	14.75 lbs.	
9	Sulphur	13 lbs.=81%	3 lbs.=19%	0	16 lbs.	
10	0 Check	7 lbs.=50%	5 lbs.=36%	2 lbs.=14%	14 lbs.	

Referring to this table, we will consider first the effect of the barn-yard manure. The results obtained in a similar experiment last year showed that the use of composted manure, as compared with fresh manure, increased the amount of scabby potatoes by over 25 per cent. At the same time it was seen that the compost produced the larger yield. The former result was unexpected and the present experiment was therefore undertaken.

Comparing the results obtained from Rows 1 & 2 with those from Rows 3 & 4, we see at once that not only has the composted manure produced the larger yield, but the quality of the tubers grown on it is decidedly superior to that of the potatoes grown on the fresh manure. This seem to indicate that if barn-yard manure is to be used in connection with potatoes, it should be composted and thoroughly rotted before it is used. But that manure in any form does tend to induce scab upon potatoes, is abundantly proved by this experiment, the percentage of scabby potatoes from the manured rows being in excess of that obtained from the check row, even though the manured rows were planted with clean seed and the check row with scabby seed ; nor is the yield much larger with the manure than with the fertilizer-chemical. We may conclude then, that it is inadvisable to use stable or yard-manure in any form for potatoes, even though neither the seed nor the soil present any source of contagion. This conclusion is based upon results uniformly obtained during three successive years and under many varying conditions.

The lysol treatment is again open to the same objections which we have considered in the other experiments. The weaker solutions are certainly better than nothing, as may be seen by comparing Rows 5 & 6 with Row 10, but the quality of the crop from both rows shows conclusively that the seed-potatoes, which were the only source of contagion, were not sterilized by the treatment. The 1% solution gives better results as regards the prevention of scab, but the yield has been very seriously diminished from its effects. The sulphur again proves superior to the lysol, and indeed shows a good record, (compare Rows 9 & 10.) But corrosive sublimate still heads the list as the best preventive of scab, all things considered. Its value is most decidedly marked when the seed offers the only source of contagion; and it is fortunate that such is the case, for the use of barn-yard manure is seldom unavoidable, and clean land can generally be substituted for land which has become infested with the scab-fungus; but it is frequently impossible to secure clean seed for planting, and under such circumstances the corrosive sublimate treatment presents a cheap and expeditious method of securing at least an almost clean crop.

It only remains to consider again the effect, as regards the increase of scab, of leaving the potatoes in the ground.

The following tables show the results of the second digging, Oct. 20th, and a comparison between those results and the character of the crop a month earlier.

Table VI. Effect of Manure and of Fungicides upon the Prevalence of Potato-Sca on Clean Land. Oct. 20th.

Row.	Treatment.	1st Quality.	2d Quality.	3d Quality.	Total Yiel
1 and 2	Fresh Manure.	9.5 lbs.=26%	13 lbs.=36%	14 lbs.=38%	36.5 lbs.
3 and 4	Composted Manure	15 lbs.=32%	18 lbs.=38%	14 lbs =30%	47 lbs.
5	Lysol, $\frac{1}{10}$%	12.5 lbs.=73%	4.5 lbs.=26%	0.25 lb.=1%+	17.25 lbs.
6	Lysol, ½%	13 lbs.=70%	5 lbs.=27%	0.5 lb.=3%−	18.5 lbs.
7	Lysol, 1%	13.5 lbs.=68%	6 lbs.=30%	0.5 lb.=2%+	20 lbs.
8	Corrosive Sublimate	14 lbs.=78%	4 lbs.=22%	0	18 lbs.
9	Sulphur	16 lbs.=77%	4.5 lbs.=22%	0.25 lb.=1%	20.75 lbs
10	0	10.5 lbs.=60%	6.5 lbs.=37%	0.5 lb.=3%−	17.5 lbs.

Table VII. Comparative Effect of Late and Early Digging on the Quality of Potatoes Exposed to Scab.

Row.	Sept. 14. Total Scabby.	Oct. 20. Total Scabby.	Difference.	
1 and 2	73%	74%	+ 1%	
3 and 4	60%	68%	+ 8%	
5	32%	27%	− 5%	
6	32%	30%	− 2%	
7	28%	32%	+ 4%	
8	12%	22%	+10%	
9	19%	23%	+ 4%	
10	50%	40%	−10%	

No satisfactory conclusions can be reached from these figures regarding the advisability or otherwise of leaving in the ground potatoes which are exposed to the attacks of the scab fungus. The manured rows dug Oct. 20th show an increase in the percentage of scab over those dug Sept. 14th, but the same is true of the rows which received the most effective treatment, while the row which had no treatment at all shows a decided decrease. These results do not even agree with those obtained in Experiment II, except as regards the decreased percentage of scab in the untreated rows.

Leaving this matter without further comment, we may summarize the results of Experiment III, as follows:

(1) Barn-yard manure as a fertilizer for potatoes, even when both soil and seed are free from the scab-fungus, will induce scab upon the crop and produce very serious injury. The use of manure should therefore be avoided.

(2) Lysol in a solution of 1% tends to reduce the yield, though it is fairly effective as a preventive of scab. The efficiency of weaker solutions of lysol is not such as to warrant their recommendation unless they are allowed to act for two hours at least.

(3) Sulphur as a preventive of potato-scab is second only to corrosive sublimate in efficiency. It costs more however, and is not so conveniently applied.

[One of the principal advantages claimed for sulphur in this connection is that when scattered in the hill or row it permeates the soil and serves to destroy the scab-fungus in the soil as well as upon the tubers, and can therefore be used to great advantage on scabby land. This cannot be properly claimed in the case of corrosive sublimate. If true, this character would add largely to the value of sulphur. Our experiments, however, fail to substantiate this claim conclusively, the percentage of scabby tubers upon infested soil being quite as much larger proportionately than that upon clean soil as in the case of corrosive sublimate. (Compare the results of Experiment II and Experiment III as regards the percentage of scabby tubers accompanying the use of sulphur and sublimate respectively.)]

General Summary.

A careful consideration of the results of the three experiments described in the preceding pages of this Report and of those described in the Reports of this Station for the past two years, warrants the following conclusions regarding the treatment of potato-scab:

(1) Regarding the Soil. The surest means of infecting potatoes with scab is planting them upon land infested with the scab-fungus. No treatment as yet known will be of much avail against this source of contagion. In planting potatoes, beets or turnips therefore, select land which has not recently borne any one of these crops.

(2) Regarding the Fertilizer. Barn-yard manure is a fertile source of contagion against which no treatment is thoroughly effective. Avoid manure as a fertilizer for potatoes, beets or turnips, if possible.

(3) Regarding the Seed. Seed-potatoes carrying the living germs of the scab-fungus will produce a scabby crop, and, other things being equal, the amount of scab on the crop will be directly proportionate to the amount of scab on the seed. Select therefore, clean, smooth potatoes for planting, if possible. In case scab-spots are visible upon any of the seed-potatoes treat them all, before planting, with some well recognized fungicide.

(4) Regarding Preventive Treatment. (a) The cheapest and most effective method of preventing potato-scab consists in soaking the seed for one and one-half hours, before cutting or planting, in a solution of corrosive sublimate made in the proportion of 2¼ ounces to 15 gallons of water. This treatment reaches its highest efficiency in cases where the seed-potatoes constitute the only source of infection. It is efficient, though in a much lesser degree, in case barn-yard manure is used as a fertilizer, and is least effective in case the soil is infested.

(b) In certain cases flowers of sulphur applied to the seed before cutting and to the soil before planting reduces very materially the amount of scab upon the crop, but the expense and inconvenience of this treatment as compared with the more effective corrosive sublimate treatment, renders its adoption generally impracticable.

(c) Lysol can not as yet be recommended as a practicable preventive of potato-scab. It is possible that a ½% solution, allowed to act upon the seed for a period not less than two hours, would give satisfactory results. The non-poisonous character of lysol, the convenience attending its use, and its possible value as a fungicide render further experiments with it highly advisable.

(5) Use clean land and avoid manure. Plant only smooth seed, if possible. If there is a suspicion of scab in the soil or on the seed treat the latter thoroughly with corrosive sublimate solution.

(6) Lysol applied as a spray failed to give satisfaction as an insecticide or fungicide.

(7) The commercial article known as "Dry Bordeaux Mixture" proved distinctly inferior as a fungicide to Bordeaux mixture prepared in liquid form according to the recognized formula and applied as a spray.

ON THE SUSCEPTIBILITY OF VARIOUS ROOT–CROPS TO POTATO–SCAB AND THE POSSIBILITY OF PREVENTIVE TREATMENT.

By Wm. C. Sturgis.

It is already a well-known fact that beets and turnips planted on land infested with scab-fungus, from whatever source, are liable to the attacks of the fungus equally with potatoes. In order to carry this question further a preliminary investigation was undertaken this year at South Manchester, its object being to ascertain which of our common root-crops, besides beets and turnips, were susceptible to potato-scab, and if the attack of the fungus could be prevented or its virulence diminished by treatment of the soil with fungicides previous to sowing the seed. The land selected was a portion of the potato-field used last year, and was known to be thoroughly infested. The plants selected for the experiment were radishes (Long scarlet) parsnips, salsify, carrots (Long orange), turnips (Ruta-baga), turnips (White egg), beets (Mangels), and beets (Red Egyptian). The plot was carefully prepared and laid out in thirty-two rows (four to each variety of seed), each twenty feet long. Each set of four rows received the same treatment respectively, viz:

Row 1. Water, 2 gallons.
Row 2. ½% Lysol solution, 2 gallons.
Row 3. 1% Lysol solution, 2 gallons.
Row 4. Corrosive sublimate solution (1 ounce to 6 gallons), 2 gallons.

The rows were furrowed out, the solutions applied as evenly as possible from a watering-pot, and the seed sown. It was hoped that by this means the chemicals held in solution would permeate the soil about the seed, be washed down deeper by rains, and thus, in a measure at least, sterilize the soil occupied by the descending roots.

The planting was done May 15th and a careful record was kept during the early summer to ascertain the effect of the chemicals upon the germination of the seed and the growth of the plants. During this period the plants were thinned out twice. Later, as the roots matured, ten or more were pulled from different parts of each of the rows which showed a sufficiently good stand. This was repeated at intervals of about three weeks until October 20th, the roots pulled being washed at once and carefully examined for traces of scab.

The germination of the seed and the growth of the plants was extremely irregular, owing to the effects of the chemicals. The check rows, which had been treated with water only, showed a good growth on June 5th, and gave a perfect stand in every instance. On the same date the rows treated with ½% lysol showed the seedlings above ground, with the exception of the mangels, carrots and parsnips, but the growth was scattered and uneven. Of the rows treated with 1% lysol, the beets and the salsify alone showed a few scattered seedlings; with corrosive sublimate the turnips of both kinds and the radishes had made a good start; the other rows so treated were still blank. It was evident therefore, that both of the chemicals used had injured the seedlings more or less; the injury was most apparent from the 1% lysol, less so from the sublimate, and least of all from the ½% lysol. None however, showed a satisfactory stand as compared with the check rows on June 5th.

On July 31st there were still many blank rows. With 1% lysol the beets and radishes showed a very incomplete stand, the carrots and salsify showed two or three plants each, the other seeds had failed altogether. With corrosive sublimate the radishes and both kinds of turnips showed a fair stand, but the plants were very backward, the beets showed a few scattered plants, the salsify showed two plants only, and the mangels, carrots and parsnips were a complete failure. With ½% lysol the parsnips and carrots alone failed completely, the beets and turnips showed a fair but much belated stand, the mangels, salsify and radishes showed only four or five plants each. We must conclude therefore, that lysol in a solution of ½% or more, and corrosive sublimate in the strength commonly used for disinfecting seed-potatoes, injure the seeds of our common root-crops so seriously when applied to the adjacent soil that their effectiveness in preventing scab upon the roots is a matter of no importance, except as a guide to future work upon the subject.

The susceptibility of the root-crops to scab was ascertained by successive examinations of a few roots pulled from each of the check-rows. The first examination was made July 31st. At this time the beets, turnips and radishes alone were large enough to show tangible results. The radishes showed no sign whatever of scab; 28% of the turnips showed what might have been incipient scab-spots, but they were not sufficiently advanced to permit of accurate diagnosis; the beets were seriously diseased, 55% of the roots showing well-developed scab-spots over the greater part of their surface.

On August 18th samples were taken from the check-rows of the radishes, ruta-bagas, turnips, mangels and beets. The radishes again showed no scab and the experiment in their case was considered as closed. The ruta-bagas showed no scab, the turnips showed 17% of the roots slightly scabby, the mangels 40% and the beets showed no roots free from scab. On September 10th the beets showed 33% of scab, the turnips none, the ruta-bagas 43%, the carrots none and the parsnips none. The mangels were not examined on this date. On October 20th the parsnips showed 10% of the roots doubtfully scabby, the salsify showed all clean roots. No examination of the other root-crops was made on this date. This closed the experiment so far as the susceptibility to scab of the various root-crops was concerned.

It will be seen that of the eight varieties tested, the radishes and carrots alone remained unquestionably free from scab. The salsify showed very little if any scab, the parsnips gave similar results, the ruta-bagas gave an average of 21% of scab, the turnips 15%, the mangels 40% and the beets 63%.

Although, from the fact that the stand was so seriously affected by the chemicals used as preventives of scab, the results regarding their efficiency in this respect are of little practical value, it may be well to consider them briefly. The radishes, carrots, salsify and parsnips may be left out of the question since even when not treated they proved to be very slightly, if at all, susceptible to scab, and we need examine only the results obtained in the case of the beets, mangels, turnips and ruta-bagas.

On July 31st the turnips and the beets were examined, and on Aug. 18th and Sept. 10th all of the rows were examined with the exception of those in which the lack of plants, owing to the diminished stand, prevented further investigation. The following table represents the results obtained both as regards the stand on July 31st and the amount of scab present.

TABLE VIII. EFFECT OF FUNGICIDES APPLIED TO INFESTED SOIL IN PREVENTING POTAT
SCAB UPON ROOT CROPS.

			June 5.	July 31.		Aug. 18.	Sept. 10.	
	Row.	Treatment.	Stand.	Stand.	Scabby.	Scabby.	Scabby.	Averag
Beets	32	0	Good	Good	55%	100%	33%	63%
	31	Lysol ½%	Poor	Fair	40%	28%?	14%?	27%
	30	Lysol 1%	Very poor	Poor	25%	17%?	----	21%
	29	Cor. sub.	------	Very poor	Clean	----	25%	13%
Mangels	28	Cor. sub.	------	------	----	----	----	----
	27	Lysol 1%	------	------	----	----	----	----
	26	Lysol ½%	------	Very poor	----	----	17%	17%
	25	0	Good	Good	----	40%	----	40%
Turnips	24	0	Good	Good	28%?	17%	Clean	15%
	23	Lysol ½%	Poor	Fair	11%	----	Clean	6%
	22	Lysol 1%	------	------	----	----	----	----
	21	Cor. sub.	Fair	Fair	33%	----	Clean	16%
Ruta-bagas	20	Cor. sub.	Fair	Fair	----	----	17%	17%
	19	Lysol 1%	------	------	----	----	----	----
	18	Lysol ½%	Poor	Fair	----	----	40%	40%
	17	0	Good	Good	----	Clean	43%	21%

It is unnecessary to comment further upon these results; they may be summarized as follows:

(1) Beets, mangels, turnips and ruta-bagas are susceptible to potato-scab in a marked degree if planted in soil infested with the fungus causing that disease. None of these root-crops therefore, should occupy land which has recently borne scabby potatoes.

(2) Radishes, parsnips, salsify and carrots show little if any susceptibility to potato-scab when exposed to it in the soil.

(3) Corrosive sublimate in a solution of the strength commonly employed as a disinfectant for potatoes infested with scab, tends to diminish the yield from root-crops so seriously when applied to the adjacent soil, that its use in this way can not be recommended. The same is true regarding solutions of lysol of a concentration of ½% or more. The results of the experiment above tabulated seem to indicate that solutions of either corrosive sublimate or lysol, applied before seeding, to soil infested with potato-scab, will lessen very decidedly the amount of scab upon root-crops subject to this disease. It is questionable if these solutions, made of sufficient strength to insure partial immunity to the crop, will not so far decrease the yield as to render their use impracticable. The results indicate that further experiments in this direction are advisable.

ON A LEAF-BLIGHT OF MELONS.

By Wm. C. Sturgis.

Attention was called in our last Report, p. 186, to a serious disease of melons caused apparently by a fungus of the genus *Alternaria.* The disease attacked and practically ruined three large fields of melons owned by the Messrs. Meeker of Saugatuck. This year the owners were advised to make thorough applications of Bordeaux mixture, beginning just before the first flowers opened, and repeating the treatment three or four times at intervals of ten days. The melons were planted upon land which had not before been used for this purpose, and it was therefore hoped that the vines would be fully protected by the treatment. But late in July word was received from the Messrs. Meeker that the leaves of many of the vines were beginning to wilt and show other evidences of blight. Inspection of the vines showed a serious condition, but one differing decidedly in general appearance from that caused last year by the *Alternaria.* The spraying had been faithfully done and the vines were still covered with the mixture applied a few days previously for the third time, but the leaves were wilting and the edges turning yellowish in color. As the trouble advanced the portions first affected became brown and crisp, and sometimes the whole leaf was involved. The injury was further increased by the presence of great numbers of plant-lice which infested the lower side of the leaves and caused them to curl up, thereby preventing the thorough application of the Bordeaux mixture. Careful examination of the affected leaves showed only occasional indications of fungous-attack on the dead tissues. The portions of the leaves first affected were uniformly free from fungi, but it was observed that the texture of such leaves was abnormally thick and leathery, as though the tissues were surcharged with water. The weather had been such as to render this view highly probable. The wilting and yellowing of the leaves was first noticed as serious on July 23d. The weather for eight days previous to that date was characterized by long periods of cloudiness or haze sometimes followed by rain, alternating with short periods of clear, extremely hot sunshine. This condition was especially marked on July 18th and 19th. The melons occupied fairly level land having a southern exposure, so that during rainy weather the soil retained a great deal of water and was supposably reduced in temperature. Moreover, when the sun shone the vines were exposed to its full force. It was further observed that the wilted and blighted leaves of water-melons showed numerous corky blisters upon the yellow areas, apparently caused by the rupture and subsequent healing-over of cells turgid with water. That under such meteorological conditions the leaves of certain plants will suffer serious injury is attested by many observers. A trouble almost identical with this melon-blight did great damage to tomato-plants grown under glass at this Station, and is commonly associated with a burning sun immediately following a prolonged period of cloudy weather. Lodeman (Cornell Agr. Exp. Sta., Bull. 76, p. 429) calls attention to a similar trouble affecting grapevines, and agrees in attributing it to "a disturbance of the equilibrium existing between the absorption of water by the roots and its evaporation from the leaves." Bailey and Galloway recognize the same cause and effect in the case of blighted tomatoes. It is unnecessary here to discuss the scientific explanation of this phenomenon. It is sufficient to note that in the case of the melons there is no other sufficient cause to which the trouble can be attributed. The two species of fungi found occasionally upon the dead leaf-tissue are, it is true, the agents of a distinct disease, but in this case no trace of them was found in the early stages of the blight, and very few traces at any time; the plant-lice undoubtedly worked much injury, but the majority of the leaves upon which they were most abundant were not blighted, while the blighted leaves harbored few lice; the meteorological conditions, on the other hand, were such as to cause injuries identical with those observed.

It is difficult to offer any suggestions as to the prevention of such injury; it would seem however, that by providing for thorough drainage during rainy weather and for screening the vines in case of a sudden access of sunshine, it might be in a measure avoided.

N. B. For a further discussion of the cause of this trouble as seen in the case of tomato-plants, see p. 232 of this Report.

ON THE PROBABLE WINTER-CONDITION OF THE FUNGUS OF PEACH-SCAB.

(*Cladosporium carpophilum.*)

BY WM. C. STURGIS.

Early in March I received some specimens of peach-twigs which showed evidences of a diseased condition. They were abundantly marked with more or less circular blotches of a yellowish-brown color with a dark gray or black border, somewhat resembling in appearance the familiar "bird's-eye rot" of grapes (*Sphaceloma ampelinum*, de Bary). Frequently these spots or blotches became confluent and invested the twigs so completely as to mask the normal pinkish-brown color of the young bark. Investigation showed that this trouble was widely spread. The original specimens were received from Milford, later it was found on peach-trees at Cheshire and on the Experiment Station grounds, and in the neighborhood of Bridgeport it occurred abundantly on peach, almond and apricot. Upon the apricot trees examined the blotches were of a pale gray color, and the growth of the fungus beneath the cuticle had ruptured the latter so that the surface of the blotches appeared marked with fine longitudinal cracks. In some cases a black fungous growth occupying the margin of the blotch, was observable with a hand-lens.

Microscopic examination of thin sections of both diseased and normal bark showed the same conditions prevailing as a result of the fungous growth upon all the host-plants above mentioned.

A section of a normal twig shows first the comparatively thick *cuticle* composed of a single layer of brownish cells, the superficial walls of which are much thickened and hyaline. Beneath this layer are four or five layers of very much flattened cells constituting, together with the cuticle, the *epidermis* or bark. In the peach the sub-cuticular layers of cells are much less developed than in the apricot and are sometimes wholly wanting. The *cambium* or delicate growing tissue immediately below the bark, is composed in both cases of large, thin-walled cells, the contents of which are colored pink in the more superficial layers (thus giving the characteristic color to the young twigs), and are abundantly provided with chlorophyl in the deeper layers. The cambium may measure 0.2^{mm} or more in thickness; in its deeper layers are numbers of "cystoliths"—crystalline aggregations occupying intercellular cavities,—and beneath it are seen the groups of thick-walled wood-cells. So much for the microscopic structure of a normal twig of peach.

Sections through a diseased spot show a number of pathological changes. The cuticle has been partially broken down and separated from the layers of cells beneath; the latter have been increased in number by the transformation of the subjacent cambium cells into layers of flattened, corky cells, and the pink color of the upper layers of cambium cells has disappeared. By this transformation of the cambium cells the function of this layer is impaired, and if the injury becomes very deeply seated the cambium may become practically obliterated; this involves the death of the twig at that point. Occupying the spaces formed by the partial separation of the cuticle, is seen the *mycelium* or vegetative portion of a fungus, collected into aggregations of dark-brown spherical cells—a resting condition characteristic of the mycelium of many superficial or semi-superficial fungi. In many cases this mycelium has reached the surface through the cracks in the ruptured cuticle, and there are still to be seen the short, erect, brown *hyphae* upon which the spores of the former season were borne. What appear to be the spores themselves are occasionally seen, not attached to the *hyphae* or *sporophores*, but mingled with the fungous crust upon the surface of the bark. These spores are dark-brown, two-celled, and measure $15\mu-21\mu \times 5\mu-9\mu$, thus agreeing with those of the "peach-scab" fungus, *Cladosporium carpophilum*, Thüm.

At the time of this first examination the most careful search failed to show a single spore in direct connection with the mycelium; but on July 8th, twigs of peach showing the characteristic spots were collected at Milford, and the connection between the spores and the mycelium was evident. The edges of the spots were beset with a dense growth of erect fungous threads each bearing upon its tip a brown, two-celled spore identical with those seen earlier in the season.

Peach-scab is too well known to require any extended description. It attacks a number of stone-fruits such as the peach, nectarine, apricot, plum and cherry, producing small, round greenish-brown spots upon the fruit when not more than half grown. If the attack is severe the spots coalesce, the cells injured by the fungus repair the injury by the formation of cork, a hardening of the tissues at that point results, they cease to expand and, as the surrounding portion of the fruit grows, the injured part cracks open, or the whole fruit becomes dwarfed and misshapen. The fungus causing this trouble has, until recently, been supposed to occur exclusively upon the fruit; Halsted however, has noted its occurrence on the leaves of the peach, where it produces a "shot-hole" injury.* He writes as follows: "The fungus prefers the portions of the leaf lying midway between the main veins, and as these portions become infested by the fungus the tissue dries up and finally falls away, leaving holes that are often circular in shape. The fungus upon the leaf agrees very closely with that upon the fruit, the chief difference, perhaps, being in the size of the spores, which are somewhat narrower as a rule than those upon the fruit."

We have therefore conclusive evidence that the fungus causing the scab of peaches and other stone-fruits, rendering them unsightly and diminishing their market-value, may do additional injury by attacking the leaves, and that it passes the winter in a sterile, resting condition on the twigs of the previous season's growth. With the advent of warm weather the fungus becomes active, and spores are produced abundantly which are carried by the wind or other agencies to the leaves and young fruit. Thus far the winter-condition has not been observed on other than peach, apricot and almond trees. The fact of its occurrence on the twigs suggests the advisability, in severe cases, of cutting away and burning the new wood in winter while the fungus upon it is dormant. In cases calling for less drastic treatment, great benefit would doubtless result from two thorough sprayings with a solution of 1 pound of copper sulphate in 25 gallons of water, applied early in the spring before the buds swell. If the previous crop of leaves or fruit has shown much scab, all the refuse should be gathered and burned before the copper sulphate solution is used. It can not be too strongly stated that when once the dormant stage of a parasitic fungus is known and located, preventive treatment is an easy matter as compared with the laborious operations necessary later, when the fungus is producing its myriads of spores, each a possible center of infection.

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*N. J. Agr'l Exp't. Sta., Rep. for 1894, p. 329.

DESCRIPTION OF PLATE VII.

A leaf of tobacco affected with the leaf-spot disease, caused by the fungus *Cercospora Nicotianæ.* The circular spots where the tissues have been killed by the fungus are very evident; in places the diseased tissues have separated from the leaf, thereby causing ragged holes. Reduced $\frac{1}{2}$.

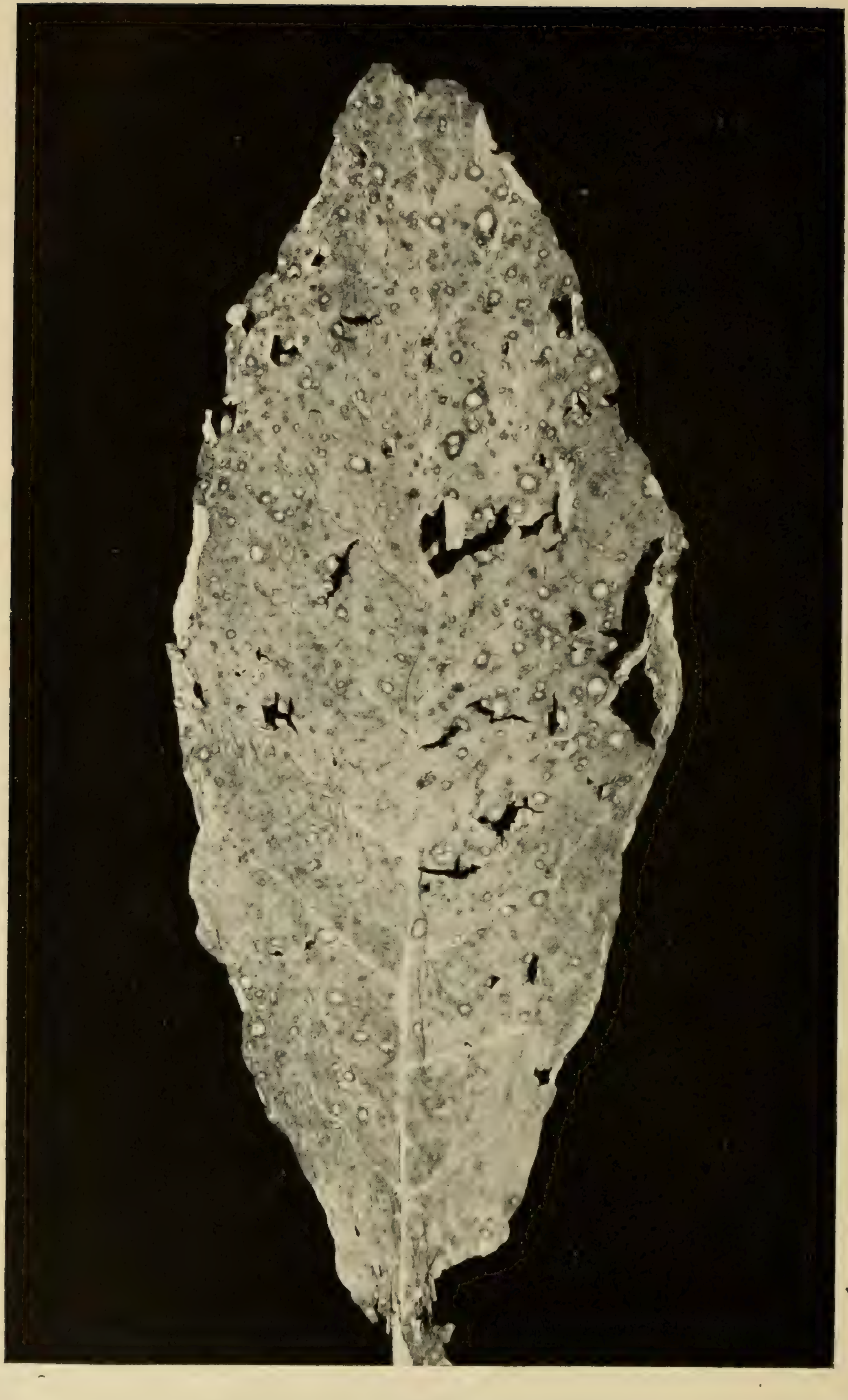

PLATE VII. LEAF-SPOT OF TOBACCO.

ON A DESTRUCTIVE FUNGOUS DISEASE OF TOBACCO IN SOUTH CAROLINA.

Plate VII, and Plate VIII figs. 1–3.

BY WM. C. STURGIS.

On Aug. 7th, I received through the kindness of Prof. Halsted of the N. J. Agricultural Experiment Station a sample of tobacco leaf showing a remarkably diseased appearance, and it seems advisable to call the attention of tobacco-growers to the matter, because the disease is evidently capable of doing great damage to standing tobacco, and because its immediate cause is a fungus belonging to a very large genus having an almost unlimited range and liable therefore to occur north of the locality from which it is at present reported.

The diseased leaves were sent to Prof. Halsted from South Carolina, and when received at this Station early in August, were comparatively fresh and of a yellow color similar in tone to that of half-cured wrapper tobacco. The disease appeared as brown circular spots from the size of a pin-head up to half an inch or more in diameter, scattered thickly over the upper surface of the leaves. These brown spots are sometimes marked with whitish centers bordered by a darker, slightly raised line; and sometimes, especially towards the tips and edges of the leaves, they coalesce to form large brown blotches and areas of irregular outline. The leaf does not decay as a result of the spotting, but the whole leaf turns yellow prematurely and dies from the tip downwards, while the tissues immediately occupied by the fungus dry up and show a tendency to fall away, leaving irregular holes in the leaf (Plate VII). Microscopic examination of the diseased spots showed that they were uniformly invaded by a species of fungus belonging to the genus *Cercospora*, members of which cause leaf-diseases of the peach, violet, beet, celery and many other plants. The particular species under consideration was named by Messrs. Ellis & Everhart, *Cercospora Nicotianæ*, from the scientific name of the plant which it affects. The original description of the fungus is as follows.*

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* Proc. Acad. Nat. Sci. of Phil., 1893, p. 170.

DESCRIPTION OF PLATE VIII.

Cercospora Nicotianæ, Ell. & Ev.

FIG. 1.—Cross-section of upper surface of tobacco-leaf showing the fungous threads bursting through in three places and producing spores on their tips. Magnified 95 diameters.

FIG. 2.—Portion of the same. Magnified 196 diameters.

FIG. 3.—Spores germinating after remaining thirty hours on the surface of a leaf floated in water. The germ-tubes are seen penetrating through two stomata, which alone are represented in the drawing. Magnified 375 diameters.

Puccinia Asparagi, DC.

FIG. 4.—Two sori of summer-spores occupying the external tissues of an asparagus-stem. Magnified 50 diameters.

FIG. 5.—Portion of the same. Magnified 196 diameters.

FIG. 6.—Portion of a sorus of winter-spores. Magnified 196 diameters.

FIG. 7.—A sorus of winter-spores. Magnified 50 diameters.

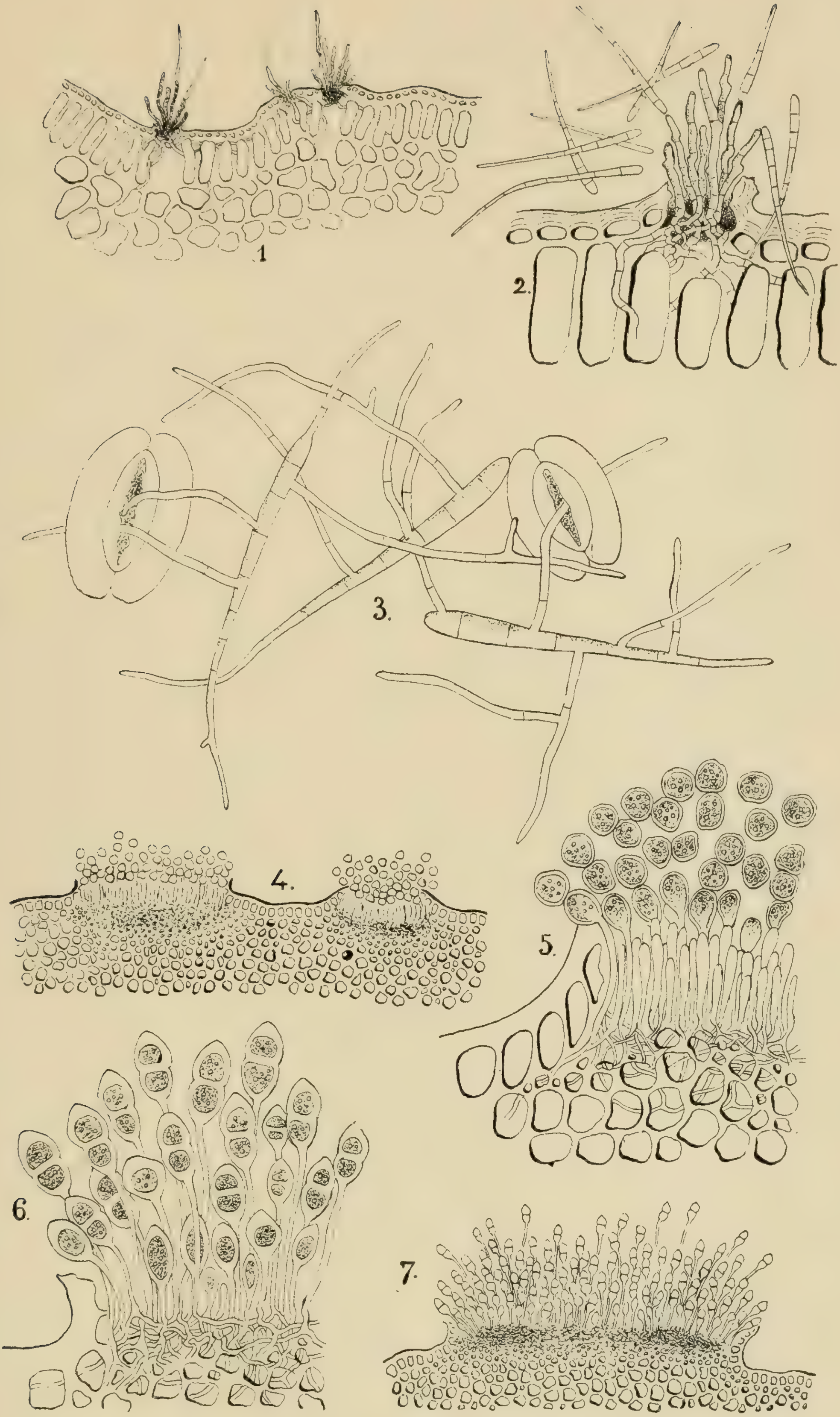

PLATE VIII. LEAF-SPOT OF TOBACCO AND RUST OF ASPARAGUS.

"*Cercospora Nicotianæ, E. & E. On leaves of tobacco, Raleigh, N. C. Oct., 1891. Spots amphigenous, pale, becoming white,* 2–5^{mm} *diam., with a narrow, inconspicuous, reddish, slightly raised border, often concave below. Hyphae tufted, amphigenous,* 75–100 × 4–5μ, 2–3-*times geniculate above and sometimes with a short lateral branch, brown, septate. Conidia slender*; 40–75 × 3–3½μ, *hyaline, slightly curved, multiseptate* (*mostly about* 6-*septate*)."

The general appearance of the specimens examined by me and the slightly larger size of the spores indicate that the fungus was more luxuriant and more perfectly developed than in the case of the specimens which served as a basis for the original description ; otherwise the agreement is exact. The fruiting threads of the fungus are found usually near the centers of the diseased spots on both surfaces of the leaf. They arise from the delicate vegetative threads which permeate the leaf-tissues in all directions, and as a rule they issue in tufts through the "breathing-pores" or *stomata* of the leaf, each thread or *sporophore* bearing upon its tip a long, tapering spore divided by cross-partitions into a number of cells. (Plate VIII, figs. 1 and 2.) The spores germinate readily, and when bits of the infested leaves are floated upon water in a watch-glass for 24–48 hours the microscope shows the spores producing germ-tubes which grow over the surface of the leaf, gain entrance through the *stomata*, and spread rapidly within the tissues of the leaf. (Plate VIII, fig. 3.)

The trouble seemed to be so serious that, at Prof. Halsted's suggestion, I entered into correspondence with Mr. J. R. Barron, of Workman, S. C., from whom the diseased leaves came. This correspondence elicited the following facts regarding the prevalence and the serious character of the disease in the South. Mr. Barron states that, while it is new in his immediate neighborhood, it has long been known in North Carolina. The present season seems to have been peculiarly favorable to its spread ; it caused a loss of $1,000 on Mr. Barron's crop, in fact the crop throughout his section of the country was practically ruined by it and at last accounts it was spreading. It attacks at least four different varieties of tobacco grown on various soils, loamy, clayey and upland. There seems to be no definite period at which the plant first becomes subject to the disease, the latter sometimes appearing by the time the young plants show six leaves, sometimes not until later, but the period of worst attack seems to be just as the tobacco is ripening. Mr. Barron writes that the weather in his neighborhood was very dry up to June 20th, but moderately damp from that time until harvest, a fact which, taken in connection with the late appearance of the trouble, would indicate that the latter thrives best in damp weather. In the localities where the disease occurs it is commonly known as "frog-eye," but this term seems to include at least two distinct conditions of the tobacco-leaf. In the Tenth Census of the United States (1880), Vol. III, p. 856, occurs the following note upon "Frog-eye" or "White-speck:" "This disease, if it is such, is of rare occurrence, and is little understood. In Florida, white specks are a sure indication of fine texture in the leaf, and this 'frog-eye' appearance was at one time much esteemed. This particular marking seems to result from conditions of soil or climate, or from both, and some varieties are more frequently affected than others." This seems to be a different thing from the trouble caused by the Cercospora, though known by the same name. Under the name of "small-pox" (*Pockenkrankheit*), several European observers describe a disease of tobacco common abroad and evidently very similar in appearance to our "frog-eye," but all agree in attributing it to a deficient supply of water occasioned either by an imperfect development of the root-system or by a lack of moisture in the soil.

A third disease, somewhat similar in character, is known among tobacco-growers in Virginia as "spot" or "firing," and is attributed to sudden changes from very wet to very dry weather, or *vice versa*. This trouble, however, seems to be sufficiently distinct from the "frog-eye" to be disregarded in this connection.

Finally, Ellis & Everhart described in 1892 a fungus occurring upon tobacco in North Carolina, which they named *Macrosporium tabacinum*. After describing it they say, "This is the 'White-speck' of the North Carolina planters." The fungus *Macrosporium* is certainly as distinct as possible from *Cercospora*, and upon the very many leaves which I examined, and which were abundantly spotted with the latter fungus, I found no trace of the former.

We have, therefore, (1) the "frog-eye" or "white-speck" of the Census Report; (2) the "small-pox" of European observers; (3) the "white-speck" of the North Carolina planters, due to a *Macrosporium;* and (4) the "frog-eye" of North and South Carolina, uniformly associated with a species of *Cercospora*. It seems probable that the primary cause of the trouble mentioned in the Census Report was overlooked, and that the "frog-eye" and the "white-speck" of the southern States are very similar diseases caused by two distinct species of fungi, but often confounded by the casual observer. The European trouble is probably different, as it seems impossible that a fungus so apparent as either of those above mentioned could have been overlooked by careful observers.

The problem of finding a preventive for a fungous disease which attacks the leaves of tobacco in the field is an extremely difficult one. Bordeaux mixture would doubtless check the "frog-eye," but its use would be very questionable, owing to the gummy texture of the tobacco-leaf and the use to which the leaf is put. Possibly by beginning the treatment soon after the plants are set and discontinuing it at least a month before cutting, the disease would be prevented and at the same time the ripening leaves be freed by subsequent rains from all traces of the fungicide. This result would be more certainly attained by the use of the ammonia solution of copper-carbonate, a powerful fungicide which the texture of the leaf would cause to adhere sufficiently well, but which would wash off more readily and completely than Bordeaux mixture.

A third fungicide of possible value in this connection is flowers of sulphur dusted upon the leaves. This would undoubtedly adhere well, and would be much more convenient to apply than any liquid fungicide inasmuch as, in the case of tobacco, any fungicide would have to be applied by hand. Used liberally in clear, sunny weather, sulphur has a very marked fungicidal value.

Finally, it is quite possible that judicious fertilizing might so far increase the vigor of the plants as to render them less subject to, if not exempt from fungous disease.

There is good evidence to show that, in the case of peach trees, the application of a soluble nitrogenous plant-food, such as nitrate of soda, serves to increase the general vigor of the trees and thus prevent the attacks of the shot-hole fungus (*Cercospora Persica*), a disease very similar to the "frog-eye" of tobacco. With this idea in mind, a sample of the fertilizer chemical used by Mr. Barron was secured and was submitted to Mr. Winton, of this Station, for analysis, with the following result :

Total Nitrogen	2.16%
Total Phosphoric Acid	12.32%
Total Potash (as Muriate)	1.09%
Chlorine	1.05%

These figures indicate a rather low-grade quality of fertilizer with a marked deficiency of potash, but whether this fact is sufficient in itself to account for the susceptibility of the tobacco to fungous attack remains to be proved. Mr. Barron was advised to experiment in this direction by increasing the percentage of potash, using for this purpose either the sulphate, or else cotton-hull ashes, and to compare the results so obtained with those obtained on an adjoining plot fertilized with the low-grade fertilizer analyzed by us. Until more definite information is obtained on this point some advantage would doubtless result from careful attention to drainage, in case the soil is inclined to be soggy, and the burning of all refuse from a diseased crop.

Meanwhile, it would be well for Connecticut tobacco-growers to be on the watch for this leaf-disease and to report it immediately upon its appearance, in order that preventive measures may be instituted without delay.

NOTES ON THE SO-CALLED "SHELLING" OF GRAPES.

By Wm. C. Sturgis.

Although the condition of grapes known as "shelling" has been carefully investigated and its probable cause assigned,* the trouble has been reported once in this State and it therefore seems advisable to comment briefly upon its character, cause and possible prevention.

The single case reported occurred during the past summer at Cheshire on a row of Niagara grapes, and was first noticed about Aug. 20th. The characteristics of the disease are very evident in the fruit. Shelling grapes, at least in the case of green varieties, show a peculiar though indistinct mottling of the surface; the skin is abnormally thick and the whole berry therefore feels harder than healthy berries at the same stage of development; a section of a diseased berry shows a narrow brown zone just beneath the skin; the taste of shelling grapes is noticeably insipid as compared with the tart, astringent flavor of the unripe but healthy fruit; finally, the woody tissues of the stem which enter the fruit and, in the case of sound berries, remain attached to the stem when the berry is pulled off, are so far weakened in the case of shelling grapes that the weight of the berry is sufficient to cause them to separate from the stem, and the berries fall to the ground, leaving the end of the stem perfectly even, "as if cut with a knife." This dropping of the fruit from two to three weeks before maturing is a characteristic symptom of shelling, and may result in very serious loss, a loss emphasized by the fact that the trouble does not confine itself to certain bunches on a vine leaving others unaffected, but affects portions, generally the end, of every bunch.

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* Lodeman in Cornell Univ. Agr. Exp. Sta., Bull. 76, pp. 413–440, Nov., 1894.

After a most exhaustive consideration of all the possible causes of shelling, Lodeman concludes (l. c., p. 452) that neither insects nor fungi are to be considered as a primary cause of the trouble; that the condition of the soil, apart from the supply of available plant-food, does not exercise any marked influence on the degree of shelling; that meteorological conditions are not primarily responsible for it; and that it is not due to a lack of phosphoric acid. Among the agencies which may increase or favor the diseased condition, Lodeman mentions parasitic fungi, which weaken the function of the leaves; a weakening of the plant due to overbearing; the drawing of nourishment from the fruit by the overproduction of wood; an excessive supply of nitrogen emphasized by too much tillage; prolonged drought or excessive rains following drought; and a poorly developed root-system resulting in a general weakening of the plant. The condition of the food-supply as regards potash seems to be the only remaining factor to be considered, and Lodeman is inclined to attribute the primary cause of shelling to a lack of that element. This view is in a measure substantiated by observation and experiment.

The conditions under which shelling occurred at Cheshire are in line with Lodeman's conclusions. The vines have occupied for nine years a piece of land formerly used for a nursery; the soil is light, well-drained and naturally dry; the only fertilizer which has been applied has been occasional odds and ends, such as waste mortar, cellar sweepings, etc. Under these conditions one would suspect a lack of potash in the soil. The general condition of the vines was poor. The leafage was not over-abundant and was badly affected with downy mildew; the crop was fair, apart from the shelling, but fully half the fruit had dropped from the latter cause. There had been abundance of rain throughout the season, a horse-cultivator had been used two or three times, but no work had been done with the hoe and the ground was decidedly weedy.

DESCRIPTION OF PLATE IX.

Stems of Asparagus affected with "Rust," caused by the fungus *Puccinia Asparagi*, DC. The black sori are seen occupying lines and patches on the stems. Slightly reduced.

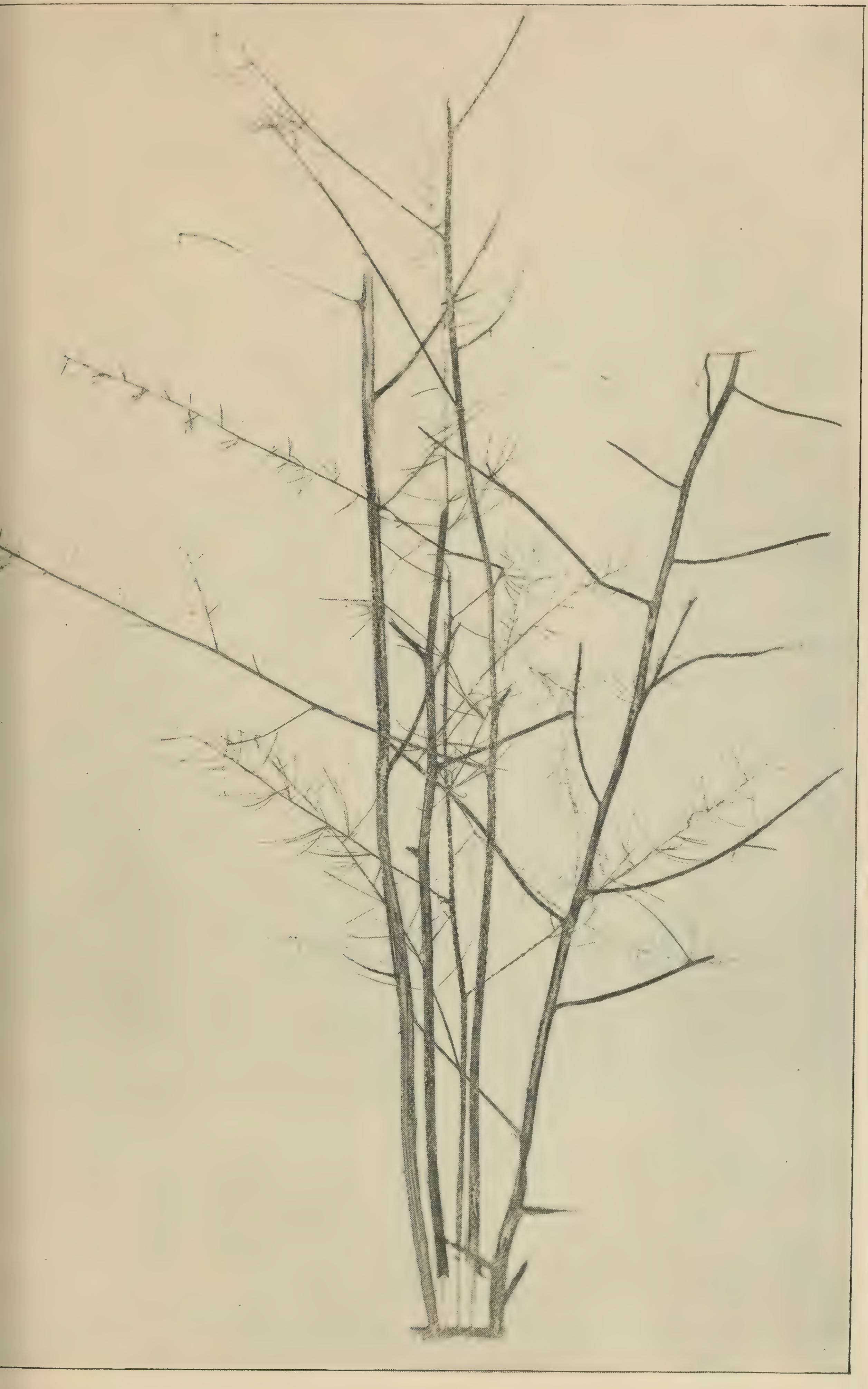

PLATE IX. RUST OF ASPARAGUS.

The bunches of grapes hung, as a rule, straight down from the bunch so that the flow of sap was not obstructed.

In view of all the circumstances, it seemed fair to assume that the shelling in this case was due to a deficiency of potash in the soil, emphasized by a weakened condition of the vines occasioned by poor culture and the presence of mildew upon the leaves. With a view of obtaining further light upon the matter another season, the owner was asked to divide this row of Niagara grapes into four equal portions, and in the spring to apply kainit to the first portion, muriate of potash to the second, an excess of nitrogen to the third, and to leave the fourth without additional fertilizing as a check.

MISCELLANEOUS NOTES ON FUNGOUS AND INSECT PESTS.

By Wm. C. Sturgis.

Treatment for Leaf-curl of Plum.—In my last report I called attention to a serious disease of Japanese plums caused by the leaf-curl fungus, *Exoascus mirabilis*, Atk. During the past summer the affected trees received thorough treatment with Bordeaux mixture, with the result that they were completely protected and no trace of leaf-curl was apparent. The foilage remained healthy throughout the season, but owing to the injury done last year the crop was a failure.

Rust of Asparagus.—(Plate VIII, figs. 4–7 and Plate IX.) Late in the summer of the present year Prof. Halsted discovered a very serious outbreak of this disease in New Jersey, and consequent investigation showed that it was widely spread throughout New England and adjacent states. It is caused by the fungus *Puccinia Asparagi*, DC, and makes its appearance in August or September upon the stalks and branches of the asparagus bushes. The fungus saps the vitality of the plants so that an infested patch appears as if blighted by drought, a sickly yellowish color replacing the normal green. Unfortunately this is one of those diseases which are easily overlooked; on the grounds of this Station, where it proved to be very abundant, it was not observed until Prof. Halsted's circular led to a close examination of the plants.

The fungus is easily recognized upon close inspection. It presents the appearance of small rust-colored or black pustules, technically called *sori,* arranged in lines or scattered groups upon the stem and branches of the affected plant. (Plate IX.) Microscopic examination shows that these *sori* have their origin within the tissues of the plant, and later rupture the epidermis, producing innumerable spores freely exposed to the air (Plate VIII, figs. 4–7). These spores are of two kinds, first, a form, almost spherical and one-celled, which may be called the summer-spores; these appear first and impart their color to the pale or rusty-brown *sori* (Plate VIII, figs. 4 & 5). The second form appears later; they are almost black in color, borne on long stalks, provided with thick walls, and divided in the middle by a cross-partition. (Plate VIII, figs. 6 & 7.) These we may call the winter-spores, since it is they which live through the winter upon the refuse of the diseased bushes and serve to propagate the disease with the return of warm weather in the spring. There can be no question but that this fungus bids fair to become a serious pest, and the only practical method of keeping it in check at present consists in burning every vestige of the diseased bushes. It is barely possible that some fungicidal treatment may prove available, but the rust-fungi are usually very resistant to fungicides, and thorough burning in the autumn or late summer will be more than likely to make unnecessary a resort to fungicides the following season.

The Spread of the San José Scale in Connecticut.—In the Report of this Station for 1895, p. 192, attention was called to the recent appearance of this dreaded scale-insect in the neighborhood of New London, Hartford and Bridgeport. At that time we sent out circulars to ninety-two fruit growers, all of whom had purchased trees from a New Jersey nursery known to have been infested with the scale. We have received forty-three replies to these circulars, of which thirteen report the presence of the scale, twenty-eight are negative and two doubtful. The centers of infection at present are along the coast at Darien, Bridgeport, New Haven, New London, Groton and Mystic; and in Hartford County at Hartford, Farmington, New Britain and Plantsville. Taking the forty-three replies received to our circular as a basis for estimate, it seems fair to conclude that the scale is very widely spread throughout the fruit-growing portions of the State. With regard to remedial measures nothing can be added at present to the recommendations published in Bulletin 121 of this Station and included in our Annual Report for 1895, pp. 194–202.

A word of warning, however, should be said regarding the use of a substance known as "Dendrolene." This material was originally prepared in New Brunswick, N. J., and was highly recommended as a means of preventing the attacks of borers, cankerworms, plant-lice, the pear psylla, codling moths and scales, with no injury to the trees, except when applied to young twigs or in such a manner as to cover the buds. Later we received from the Bowker Fertilizer Co., of Boston, a can of dendrolene, with the request that we give it a trial. At this time we were preparing to treat the orchard of Mr. J. L. Raub, of New London, which was completely infested with the San José scale, as well as with the bark-beetle, *Scolytus rugulosus.* Early in April the trees infested with scale were treated with a solution of whale-oil soap in the proportion of 1 lb. to 5 galls. No injury resulted from this treatment, and specimens of bark sent us by Mr. Raub on April 16th showed only about 20 per cent. of living scales. On April 23rd the dendrolene was sent to Mr. Raub with directions as to its use. It was to be applied in a thin coating with a paint-brush to the trunk and limbs of two infested peach trees; two neighboring trees, equally infested, were to receive a coat of whitewash; two others a solution of caustic potash, and the remainder of the infested trees were to be treated with kerosene emulsion. All of the peach trees infested with the bark-beetle were to be treated with dendrolene. Through a misunderstanding the dendrolene was used much more generally throughout the orchard than we had intended, but the quantity originally sent was small, so that each tree received only a thin coating upon the trunk and the base of the branches. Under date of June 4th word was received from Mr. Raub that all of the trees treated with dendrolene were dying. I at once visited the orchard and examined the trees. I found the bark beneath the dendrolene in bad condition, but at the time I attributed that condition to the effect of the scale, and expected, now that the latter were dead, that the bark would recover. It seemed best, however, to advise a cessation of further treatment. Early in November Mr. Raub wrote that the trees had not recovered, and the cause of death was evident upon examination of specimens of bark sent at the same time. The dendrolene upon them was still slightly sticky; it had penetrated the outer bark and had reduced the cambium to a brown, damp powder. It seems advisable to record the disastrous effect following the use of dendrolene in this instance, since the article has been widely advertised on the basis of a most careful and, on the whole, successful trial in New Jersey, but has since been found by Profs. Troop, of the Indiana Experiment Station, and Goff, of the Wisconsin Station, to produce results identical with those above reported.

The only plausible explanation of these facts is, that the substance at present sold as dendrolene is of a different composition from that originally made and named by Prof. Nason, of New Brunswick, N. J. This explanation is borne out by the fact that the successful experiments in New Jersey upon which the value of dendrolene is based were all made with the article as prepared by Professor Nason, while the complaints regarding it have all emanated from those who have used the article as prepared and sold by the Bowker Fertilizer Co. Fruit-growers are therefore warned that the use of dendrolene, as at present prepared, is attended with great danger to the trees to which it is applied, and that, at best, it is unsafe to make free use of dendrolene until some means is found of lessening its penetrating power.

EXPERIMENTS IN GROWING TOBACCO WITH DIFFERENT FERTILIZERS.

FINAL REPORT ON THE FERMENTED CROPS OF 1895.

By E. H. Jenkins.

The object of these experiments is to study the effects on the quality of wrapper-leaf tobacco of certain fertilizers commonly used by our Connecticut growers. Each plot under experiment receives the same fertilizers for a term of years in order to test these fertilizers under the varying climatic conditions which a succession of years affords, and final judgment on the quality of the crops is made after they have been fermented in the case and are ready for manufacture.

The work was begun in 1892 and has been carried on each year since then by this Station, in connection with the Connecticut Tobacco Experiment Company.

A full description of this experiment will be found in former reports of this Station, viz.: 1892, pp. 1–24; 1893, pp. 112–144; 1894, pp. 254–284; 1895, pp. 128–156.

An account of the growing, harvesting and curing of the crop of 1895 is printed on pages 146 to 156 of the 19th Annual Report of this Station for 1895.

Samples of the long and short wrappers from each plot, with top leaves and seconds sufficient to fill the case, were cased down for fermentation at the warehouse of Mr. L. B. Haas in Hartford, on Dec. 14th, 1895. The case lay undisturbed till Nov. 23d, 1896, when it was opened and the samples examined.

Shrinkage during Fermentation.

The tobacco weighed 337 pounds when it was cased. After fermentation it weighed 301 pounds, having lost in the intervening time 36 pounds, or 10.7 per cent.

This loss is less than has been previously observed in our experiments. The percentage losses each year have been, crop of 1892, 13.8 per cent.; of 1893, 14.0; of 1894, 11.1, and of 1895, 10.7 per cent.

The fermented crop of 1893 was judged by the expert to be "unsweated," while the others were called "well sweated," and particularly this crop of 1895, which had lost less weight by fermentation than any of the others.

It is the *nature* of the change during fermentation—about which almost nothing is known at present—and not the total loss by fermentation, which determines the effect of the process on the quality of the leaf.

JUDGMENT OF THE EXPERT.

Each lot of tobacco was marked with a number, different from the one used in the previous year, and which gave no indication of the plot from which the tobacco came.

The lots were examined and graded by Mr. Benjamin L. Haas of Hartford, who has done the same work each year since beginning the experiment. Mr. Haas devoted two days to the work, and there has thus been secured a perfectly unbiased and intelligent judgment by an expert fully acquainted with the present requirements of the trade.

A strict judgment has been given, noting all defects in the leaf.

The crops on the experiment field were in general of quite as good quality as those grown elsewhere in the neighborhood.

General Remarks.—All the samples of tobacco from the experiment field were ripe and sound.

In general all the samples show a great improvement in burn over those of previous crops. The short, light wrappers on all the plots are nearer what the trade wants in tobacco than anything we have produced hitherto, not excepting the crop of 1892.

There are few lots of really poor tobacco, and some of the lots have been graded down simply on account of their color. While most of the tobacco crops of 1895, examined by Mr. Haas, have showed some white vein after fermentation, the tobacco from the experiment field has scarcely a trace of it.

Some of the lots have a white deposit on the stem and veins, extending occasionally to other parts of the leaf surface.

This is usually called in the trade "white mold," a name which covers two very distinct things. One is a fungus, firmly attached to the tissues, the other is a crystalline salt of magnesia, probably the malate, which is easily brushed off from the affected leaves. Both damage the leaf for sale, though the latter disappears entirely in the process of manufacture and does not damage either the taste or burning quality of the leaf. The former is not so readily gotten rid of and may possibly be the cause of the mustiness which develops during fermentation and ruins the quality of the leaf.

The lots of tobacco which showed any traces of those two kinds of "white mold" were lots H, K, M, O, AA, on which there was a very small amount of the genuine mold, and lots E, G, H, K, M, N, O, R, S, X, Z, on which there was the white crystalline salt.

In every case the amount found was very small, not enough to seriously damage the selling quality.

Following are the details of the expert's judgment of the separate crops :

LOT A.

Fertilizers: 1579 lbs. cottonseed meal and 1297 lbs. cotton hull ashes per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. potash. Cost, $46.55 per ton.

Yield: 830 lbs. long wrappers per acre.
220 " short " " "
Total 1050 "

Quality:—*Burn*, holds fire well, coals very slightly. *Ash*, clear gray, hard. *Colors*, medium mottled. *Texture*, well sweated, open grain, fair finish. *Yield*, fairly profitable. *Size*, undesirable. *Vein*, fine. *Stem*, small. *Relative rank*, 14th.

LOT B.

Fertilizers: 1669 lbs linseed meal and 1324 lbs. cotton hull ashes per acre, containing 105 lbs. nitrogen, 152 lbs. phosphoric acid and 340 lbs. potash. Cost, $52.32.

Yield: 780 lbs. long wrappers per acre.
240 " short " " "
Total 1020 "

Quality: *Burn*, holds fire well, coals very slightly. *Ash*, clear gray, hard. *Colors*, dark mottled. *Texture*, well sweated, open grain, dull finish. *Yield*, fairly profitable. *Size*, very desirable. *Vein*, light. *Stem*, medium. *Relative rank*, 10th.

LOT C.

Fertilizers: 2631 lbs. cottonseed meal and 1221 lbs. cotton hull ashes per acre, containing 175 lbs. nitrogen, 177 lbs. phosphoric acid and 340 lbs. potash. Cost, $56.41 per acre.

Yield: 950 lbs. long wrappers per acre.
330 " short " " "
Total 1280 "

Quality:—*Burn*, good, holds fire fairly. *Ash*, clear white, hard. *Colors*, dark. *Texture*, well sweated, open grain, dull finish. *Yield*, unprofitable. *Size*, undesirable. *Vein*, prominent. *Stem*, medium. *Relative rank*, 25th.

Lot D.

Fertilizers: 3158 lbs. cottonseed meal and 1184 lbs. cotton hull ashes per acre, containing 210 lbs. nitrogen, 186 lbs. phosphoric acid and 340 lbs. potash. Cost, $61.38 per acre.

Yield: 1170 lbs. long wrappers per acre.
300 " short " " "
Total 1470 "

Quality:—*Burn*, holds fire well. *Ash*, mixed gray, hard, *Colors*, dark. *Texture*, good open grain, well sweated, dull finish. *Yield*, fairly profitable. *Size*, medium to large. *Vein*, fine. *Stem*, light. *Relative rank*, 9th.

Lot E.

Fertilizers: 2083 lbs. castor pomace, 1254 lbs. cotton hull ashes per acre, containing 105 lbs nitrogen, 205 lbs. phosphoric acid and 340 lbs. of potash. Cost, $43.83 per acre.

Yield: 1010 lbs. long wrappers per acre.
300 " short " " "
Total 1310 "

Quality:—*Burn*, holds fire. *Ash*, mixed gray, hard. *Colors*, medium mottled, dark. *Texture*, well sweated, open grain, dull finish. *Yield*, unprofitable. *Size*, undesirable. *Vein*, curly. *Stem*, heavy. *Relative rank*, 22d.

Lot F.

Fertilizers: 1669 lbs. linseed meal, 536 lbs. cotton hull ashes and 277 lbs. Cooper's bone per acre, containing 105 lbs. nitrogen, 152 lbs. phosphoric acid and 150 lbs. of potash. Cost, $38.47 per acre.

Yield: 640 lbs. long wrappers per acre.
220 " short " " "
Total 860 "

Quality: *Burn*, holds fire well, coals very slightly. *Ash*, clear gray, hard. *Colors*, dark mottled. *Texture*, well sweated, medium open grain, dull finish. *Yield*, fairly profitable. *Size*, medium to large. *Vein*, light. *Stem*, medium. *Relative rank*, 16th.

Lot G.

Fertilizers: 3472 lbs. castor pomace and 1149 lbs. cotton hull ashes per acre, containing 175 lbs. nitrogen, 253 lbs. phosphoric acid and 340 lbs. of potash per acre. Cost, $51.87 per acre.

Yield: 850 lbs. long wrappers per acre.
290 " short " " "
Total 1140 "

Quality:—*Burn*, coals slightly, holds fire. *Ash*, clear gray, inclined to flake. *Colors*, medium to dark. *Texture*, well sweated, open grain, dull finish. *Yield*, unprofitable. *Size*, medium to large. *Vein*, medium to large. *Stem*, medium. *Relative rank*, 28th.

Lot H.

Fertilizers: 4166 lbs. castor pomace and 1097 lbs. of cotton hull ashes per acre, containing 210 lbs. nitrogen, 277 lbs. phosphoric acid and 340 lbs. of potash per acre. Cost, $55.93 per acre.

Yield: 1190 lbs. long wrappers per acre.
260 " short " " "
Total, 1450 "

Quality:—*Burn*, holds fire fairly, coals slightly. *Ash*, mixed gray, hard. *Colors*, dark mottled. *Texture*, well sweated, medium close grain, dull finish. *Yield*, fairly profitable. *Size*, medium to large. *Vein*, small. *Stem*, medium. *Relative rank*, 18th.

Lot I.

Fertilizers: 2083 lbs. castor pomace, 1254 lbs. cotton hull ashes, 640 lbs. nitrate of soda per acre (the latter in two applications after planting), containing 210 lbs. nitrogen, 205 lbs. phosphoric acid and 340 lbs. of potash. Cost, $59.84 per acre.

Yield: 1310 lbs. long wrappers per acre.
260 " short " " "
Total, 1570 "

Quality:—*Burn*, holds fire well. *Ash*, clear gray, hard. *Colors*, medium, mottled. *Texture*, well sweated, open grain, dull finish. *Yield*, fairly profitable. *Size*, undesirable. *Vein*, fine. *Stem*, medium. *Relative rank*, 15th.

Lot J.

Fertilizers: 2083 lbs. castor pomace, 1254 lbs. cotton hull ashes, and 640 lbs. of nitrate of soda per acre (the latter applied at time of first cultivation), containing 210 lbs. nitrogen, 205 lbs. phosphoric acid and 340 lbs. of potash. Cost, $59.84 per acre.

Yield: 1270 lbs. long wrappers per acre.
320 " short " " "
Total, 1590 "

Quality:—*Burn*, holds fire well. *Ash*, clear gray, hard. *Colors*, clear, dark. *Texture*, well sweated, open grain, fair finish. *Yield*, profitable. *Size*, medium to large. *Vein*, fine. *Stem*, light. *Relative rank*, 5th.

Lot K.

Fertilizers: 1579 lbs. cottonseed meal, 1102 lbs. double sulphate of potash and magnesia, and 457 lbs. Cooper's bone, per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. potash. Cost, $40.29 per acre.

Yield: 830 lbs. long wrappers per acre.
270 " short " " "
Total, 1100 "

Quality: *Burn*, holds fire fairly. *Ash*, clear white, hard. *Colors*, medium to light. *Texture*, well sweated, open grain, dull finish. *Yield*, fairly profitable. *Size*, medium to large. *Vein*, medium to small. *Stem*, medium. *Relative rank*, 12th.

Lot L.

Fertilizers: 1579 lbs. cottonseed meal, 1102 lbs. double sulphate of potash and magnesia, 457 lbs. Cooper's bone, and 300 lbs. of lime per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. of potash. Cost, $42.27 per acre.

Yield: 640 lbs. long wrappers per acre.
250 " short " " "
Total, 890 "

Quality: *Burn*, holds fire fairly. *Ash*, clear, white. *Colors*, medium to dark. *Texture*, open grain, well sweated, dull finish. *Yield*, unprofitable. *Size*, undesirable. *Vein*, prominent. *Stem*, prominent. *Relative rank*, 23d.

Lot M.

Fertilizers: 1579 lbs. cottonseed meal, 621 lbs. high grade sulphate of potash and 457 lbs. Cooper's bone, per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. potash. Cost, $39.28 per acre.

Yield: 640 lbs. long wrappers per acre.
250 " short " " "
Total, 890 "

Quality : *Burn*, coals but holds fire fairly. *Ash*, clear gray, hard. *Colors*, light, clear. *Texture*, close grain, fairly sweated, good finish. *Yield*, fairly profitable. *Size*, medium. *Vein*, fine. *Stem*, light. *Relative rank*, 21st.

LOT N.

Fertilizers: 1579 lbs. cottonseed meal, 621 lbs. high grade sulphate of potash, 457 lbs. Cooper's bone and 300 lbs. of lime per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs of potash. Cost, $41.26 per acre.

Yield: 840 lbs. long wrappers per acre.
310 " short " " "
Total, 1150 "

Quality:—*Burn*, coals slightly, holds fire fairly. *Ash*, clear gray, inclined to flake. *Colors*, medium to dark. *Texture*, well sweated, inclined to close grain, dull finish. *Yield*, unprofitable. *Size*, medium to large. *Vein*, prominent. *Stem*, medium. *Relative rank*, 26th.

LOT O.

Fertilizers: 1579 lbs. cottonseed meal, 578 lbs. carbonate of potash and 457 lbs. Cooper's bone, per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. potash. Cost, $72.90 per acre.

Yield: 840 lbs. long wrappers per acre.
310 " short " " "
Total, 1150 "

Quality:—*Burn*, coals slightly, holds fire well. *Ash*, mixed gray, hard. *Colors*, medium to dark, bright. *Texture*, well sweated, open grain, fine finish. *Yield*, very profitable. *Size*, very desirable. *Vein*, fine. *Stem*, light. *Relative rank*, 4th.

LOT P.

Fertilizers: 1579 lbs. cottonseed meal, 1728 lbs. double carbonate of potash and magnesia and 457 lbs. of Cooper's bone, per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. potash. Cost, $57.64 per acre.

Yield: 740 lbs. long wrappers per acre.
330 " short " " "
Total, 1070 "

Quality:—*Burn*, perfect, holds fire well. *Ash*, clear white, hard. *Colors*, medium to dark. *Texture*, good open grain, well sweated, fine finish. *Yield*, very profitable. *Size*, desirable. *Vein*, fine. *Stem*, light. *Relative rank*, 1st.

Lot Q.

Fertilizers: 2000 lbs. H. J. Baker's A. A. Ammoniated Superphosphate and 4000 Baker's Tobacco Manure per acre, containing 240 lbs. nitrogen, 453 lbs. phosphoric acid and 434 lbs. potash per acre.

Yield: 900 lbs. long wrappers per acre.
200 " short " " "
Total, 1100 "

Quality:—*Burn*, coals slightly, does not hold fire. *Ash*, mixed gray, hard. *Colors*, medium to dark. *Texture*, open grain, well sweated, dull finish. *Yield*, unprofitable. *Size*, medium to large. *Vein*, fine. *Stem*, medium. *Relative rank*, 24th.

Lot R.

Fertilizers: 2000 lbs. Stockbridge Tobacco Manure and 500 lbs. of the same used as a starter, per acre, containing 154 lbs. nitrogen, 307 lbs. phosphoric acid and 278 lbs. potash, per acre.

Yield: 810 lbs. long wrappers per acre.
240 " short " " "
Total, 1050 "

Quality:—*Burn*, holds fire well, coals slightly. *Ash*, clear gray, hard. *Colors*, clear, light. *Texture*, open grain, well sweated, fine finish. *Yield*, profitable. *Size*, medium to large. *Vein*, curly. *Stem*, medium. *Relative rank*, 7th.

Lot S.

Fertilizers: 3000 lbs. Stockbridge Tobacco Manure and 500 lbs. of the same used as a starter, per acre, containing 215 lbs. nitrogen, 430 lbs. phosphoric acid and 389 lbs. of potash per acre.

Yield: 1110 lbs. long wrappers per acre.
230 " short " " "
Total, 1340 "

Quality:—*Burn*, holds fire well, coals. *Ash*, mixed gray, hard. *Colors*, clear, light. *Texture*, well sweated, fairly open grain, fine finish. *Yield*, profitable. *Size*, medium. *Vein*, fine. *Stem*, medium. *Relative rank*, 8th.

Lot T.

Fertilizers: 945 pounds dry fish scrap, 547 lbs. nitrate of soda, 300 lbs. of lime per acre, containing 175 lbs. nitrogen, 70 lbs. phosphoric acid and no potash. Cost, $32.19 per acre.

Yield: 580 lbs. long wrappers per acre.
140 " short " " "
Total, 720 "

Quality:—*Burn*, does not hold fire, coals. *Ash*, white, flakes. *Colors*, dark, mottled. *Texture*, not well sweated, close grain, no finish. *Yield*, unprofitable. *Size*, undesirable. *Vein*, heavy, curly. *Stem*, coarse. *Relative rank*, 29th.

LOT U.

Fertilizers: 2200 lbs. Mapes' Tobacco Manure, wrapper brand, and 600 lbs. Mapes' Tobacco Starter. per acre, containing 138 lbs. nitrogen, 232 lbs. phosphoric acid and 291 lbs. potash per acre.

Yield: 970 lbs. long wrappers per acre.
210 " short " " "
Total, 1180 "

Quality:—*Burn*, holds fire well, coals very slightly. *Ash*, mixed gray, hard. *Colors*, clear light. *Texture*, well sweated, open grain, fine finish. *Yield*, profitable. *Size*, medium to large. *Vein*, curly. *Stem*, medium to large. *Relative rank*, 13th.

LOT V.

Fertilizers: 2400 lbs. Mapes' Tobacco Manure, wrapper brand, 400 lbs. Mapes' Tobacco Starter, per acre, containing 143 lbs. nitrogen, 219 lbs. phosphoric acid, 309 lbs. potash.

Yield: 790 lbs. long wrappers per acre.
210 " short " " "
Total, 1000 "

Quality:—*Burn*, holds fire fairly well, coals very slightly. *Ash*, mixed gray. *Colors*, clear, light. *Texture*, well sweated, open grain, fine finish. *Yield*, very profitable. *Size*, medium to large. *Vein*, fine. *Stem*, light. *Relative rank*, 3d.

LOT W.

Fertilizers: 2400 Mapes' Tobacco Manure, wrapper brand, per acre, containing 130 lbs. nitrogen, 165 lbs. phosphoric acid, 296 lbs. potash per acre.

Yield: 850 lbs. long wrappers per acre.
210 " short " " "
Total, 1060 "

Quality:—*Burn*, holds fire fairly well. *Ash*, clear gray. *Colors*, clear, light. *Texture*, well sweated, open grain, fine finish. *Yield*, very profitable. *Size*, medium to large. *Vein*, fine. *Stem*, light. *Relative rank*, 2d.

Lot X.

Fertilizers: 2000 lbs. Sanderson's Tobacco Formula per acre, containing 99 lbs. nitrogen, 156 lbs. phosphoric acid and 122 lbs. potash per acre.

Yield: 1000 lbs. long wrappers per acre.
210 " short " " "
Total, 1210 "

Quality :—*Burn*, does not hold fire, coals. *Ash*, mixed gray, hard. *Colors*, dark. *Texture*, medium close grain, well sweated, dull finish. *Yield*, unprofitable. *Size*, undesirable. *Vein*, medium. *Stem*, medium. *Relative rank*, 27th.

Lot Y.

Fertilizers: 1579 lbs. cottonseed meal and 7290 lbs. wood ashes per acre, containing 105 lbs. nitrogen, 214 lbs. phosphoric acid and 340 lbs. potash. Cost, $55.27 per acre.

Yield: 690 lbs. long wrappers, per acre.
270 " short " " "
Total, 960 "

Quality :—*Burn*, holds fire well. *Ash*, clear gray. *Colors*, medium to dark. *Texture*, well sweated, close grain. *Yield*, fairly profitable. *Size*, desirable. *Vein*, fine. *Stem*, light. *Relative rank*, 6th.

Lot Z.

Fertilizers: 1134 lbs. dry ground fish, 1197 lbs. double sulphate of potash and magnesia, 283 lbs. Cooper's bone, per acre, containing 105 lbs. nitrogen, 159 lbs. phosphoric acid and 340 lbs. potash. Cost, $41.74 per acre.

Yield: 710 lbs. long wrappers per acre.
260 " short " " "
Total, 970 "

Quality :—*Burn*, holds fire well. *Ash*, clear, white, hard. *Colors*, dark, mottled. *Texture*, well sweated, medium open grain, dull finish. *Yield*, unprofitable. *Size*, medium to large. *Vein*, curly. *Stem*, medium. *Relative rank*, 11th.

Lot AA.

Fertilizer: 10 to 12 cords of stable manure per acre, containing 111 lbs. nitrogen, 71 pounds phosphoric acid, 149 lbs. potash per acre.

Yield: 580 lbs. long wrappers per acre.
250 " short " " "
Total, 830 "

Quality:—*Burn*, holds fire fairly. *Ash*, clear white, hard. *Colors*, medium to light. *Texture*, well sweated, open grain, dull finish. *Yield*, fairly profitable. *Size*, medium to large. *Vein*, medium to small. *Stem*, medium. *Relative rank*, 17th.

LOT BB.

Fertilizers: 6000 lbs. tobacco stems and 2894 lbs. castor pomace per acre, containing 239 lbs. nitrogen, 74 lbs. phosphoric acid and 517 lbs. potash. Cost, $63.71 per acre.

Yield: 1250 lbs. long wrappers per acre.
270 " short " " "
Total, 1520 "

Quality:—*Burn*, coals, holds fire fairly. *Ash*, mixed gray. *Colors*, medium to dark. *Texture*, well sweated, medium close grain. *Yield*, unprofitable. *Size*, medium to large. *Vein*, small. *Stem*, medium. *Relative rank*, 19th.

LOT CC.

Fertilizers: 3000 lbs. Pinney's Formula Fertilizer per acre, containing 131 lbs. nitrogen, 196 lbs. phosphoric acid and 305 lbs. potash per acre.

Yield: 740 lbs. long wrappers per acre.
230 " short " " "
Total, 970 "

Quality:—*Burn*, holds fire fairly, coals slightly. *Ash*, mixed gray, hard. *Colors*, dark, mottled. *Texture*, fairly sweated, medium close grain, dull finish. *Yield*, unprofitable. *Size*, medium to large. *Vein*, medium. *Stem*, medium. *Relative rank*, 20th.

The lots in order of their value as wrappers, taking all points into consideration, are graded as follows:

P (best), W, V, O, J, Y, R, S, D, B, Z, K,
1st. 2d. 3d. 4th. 5th. 6th. 7th. 8th. 9th. 10th. 11th. 12th.

U, A, I, F, AA, H, BB, CC, M, E, L,
13th. 14th. 15th. 16th. 17th. 18th. 19th. 20th. 21st. 22d. 23d.

Q, C, N, X, G, T (poorest).
24th. 25th. 26th. 27th. 28th. 29th.

The first five in the above list differ *very* little in quality.

Discussion of the Results.

The season of 1895 was more favorable to the growth of tobacco than either 1893 or 1894. On only nine days was the soil of the experiment field too dry, in the opinion of the Superintendent.

June was a dry month, no rain falling from the 6th to the 25th, but after this time more or less rain fell in every week, so that the water content of the soil to the depth of eight inches was practically the same throughout the growing season. The rain-fall during the time that the tobacco was on the land, in the several years of our experiment, has been:

In 1892	16.01 inches.
1893	6.13 "
1894	7.16 "
1895	9.38 "

Comparative Fire-Holding Capacity.

In the table on the opposite page is given the relative fire-holding capacity of the long and short wrappers from each plot, determined by Messrs. Winton and Ogden, by the method described in the Report of this Station for 1893, p. 124.

The lot which held fire the shortest time is marked 100, and the other lots are so marked as to express numerically their capacity for holding fire; for example, lot T held fire for a shorter time than any other (100), lot A held fire more than three times as long (325).

The fire-holding capacity of the leaf was in every case increased by the fermentation, though not by any means equally in all cases.

The *average* fire-holding capacity of the four years' crops already fermented are:

	Before Fermentation.	After Fermentation.
Crop of 1892	9.6 Seconds.	24.4 Seconds.
Crop of 1893	9.0 "	18.0 "
Crop of 1894	9.7 "	23.2 "
Crop of 1895	14.7 "	33.3 "

The opinion of the expert that the "burn" of the 1895 crop was better than that of any previous one is in accord with the results of these laboratory tests.

There is substantial agreement in most cases between the judgment as to fire-holding capacity by the expert and the results of these laboratory tests.

Thus the three lots, X, T, and Q, which "did not hold fire" in the judgment of the expert, were found to hold fire 13.1, 10.2, and 15.2 seconds respectively, less than half the average length of time.

The average fire-holding capacity of the lots which held fire "well" in the expert's opinion, was 36.1 seconds, ranging from 23.8 to 55.9, and that of the lots which in his judgment held fire "fairly" was 33.8 seconds, ranging from 24 to 43.7 seconds.

COMPARATIVE FIRE–HOLDING CAPACITY. FERMENTED CROP, 1895.

Plot.	Long Wrappers.	Short Wrappers.	Calculated from mean of both.	Average number of seconds during which leaf holds fire.	
				Unfermented.	Fermented.
A	370	282	325	19.5	33.1
B	276	393	336	17.8	34.3
C	395	459	428	16.4	43.7
D	370	431	402	18.6	41.0
E	404	431	419	22.3	42.7
F	507	467	486	14.9	49.6
G	369	459	416	16.1	42.4
H	206	262	235	12.2	24.0
I	285	234	259	27.3	26.4
J	327	256	291	13.5	29.7
K	217	379	301	12.4	30.7
L	411	373	392	14.0	40.0
M	274	357	317	11.6	32.3
N	267	516	395	12.4	40.3
O	361	378	370	19.8	37.7
P	541	470	505	13.8	51.5
Q	138	158	149	8.3	15.2
R	250	306	279	12.7	28.5
S	247	330	290	12.2	29.6
T	100	100	100	6.6	10.2
U	218	247	233	10.0	23.8
V	199	292	247	10.5	25.2
W	392	288	338	15.2	34.5
X	105	150	128	5.6	13.1
Y	425	663	548	23.8	55.9
Z	354	220	285	13.9	29.1
AA	318	469	396	17.8	40.4
BB	352	326	339	14.6	34.6
CC	182	331	259	11.5	26.4

NUMBER OF FERMENTED LEAVES TO THE POUND.

On page 154, Report of 1895, are given the number of leaves per pound of each lot of *pole-cured* tobacco of this crop.

The number of leaves per pound of this same crop after fermentation in the case, appears in the following table.

From 25 to 35 leaves were weighed on a balance sensitive to $\frac{1}{30}$ of an ounce, and from these weights the results in the table are computed.

NUMBER OF FERMENTED LEAVES TO THE POUND. CROP OF 1895.

Plot.	Long Wrappers.	Short Wrappers.	Plot.	Long Wrappers.	Short Wrappers.
A	54	84	P	80	94
B	66	95	Q	60	83
C	57	84	R	56	89
D	70	73	S	56	92
E	63	84	T	52	86
F	70	84	U	56	83
G	52	73	V	51	83
H	58	89	W	67	103
I	47	80	X	56	80
J	54	92	Y	69	89
K	55	89	Z	71	88
L	54	78	AA	63	79
M	58	73	BB	56	54
N	56	86	CC	61	103
O	60	86			

The average number of leaves per pound, before and after fermenting, are as follows:

CROP OF 1895. NUMBER OF LEAVES TO THE POUND.

	Pole-cured.	Fermented.
Short wrappers	79	85
Long wrappers	55	60

EFFECTS OF DIFFERENT FORMS OF NITROGEN.

Cottonseed Meal and Castor Pomace.

Plots A, C and D received 105, 175 and 210 pounds of nitrogen respectively, per acre, in form of cottonseed meal, together with about 150 pounds of phosphoric acid and 340 pounds of potash in form of cotton hull ashes.

Plots E, G and H each received the same quantities of cotton hull ashes and 105, 175 and 210 pounds of nitrogen respectively, per acre, but the latter in form of castor pomace.

The largest amount of fertilizer-nitrogen yielded in each case the largest crop.

The yield of wrapper leaf grown on these two fertilizers was practically the same, there being an average difference of only 35 pounds to the acre in favor of the castor pomace, which yielded 1,300 pounds of wrapper leaf per acre. The per cent. of wrapper leaves in the crops and the number of wrapper leaves per pound was also practically the same.

The lots A, C, D (cottonseed meal) were graded 14th, 25th and 9th. The lots E, G, H (castor pomace) were graded 22d, 28th and 18th.

The average quality of the leaf raised on cottonseed meal was therefore rather better than that raised on castor pomace.

Linseed Meal..

Plot B was dressed with 105 pounds of nitrogen per acre in form of linseed meal and with the same amount of cotton hull ashes as A and E, which received their nitrogen in form of cottonseed meal and castor pomace.

Plot B yielded nearly as much wrapper leaf as Plot A (cottonseed meal), a larger proportion being short wrappers. The number of leaves to the pound was larger and in other respects the quality was somewhat better, being graded 10th. Plot F, with the same amount of linseed meal and phosphoric acid but half the quantity of potash that was put on B, yielded considerably less tobacco and was graded 16th.

Fish.

Plot L was dressed with dry ground fish, which supplied 105 pounds of nitrogen per acre, and with 1,260 pounds of double sulphate of potash and magnesia. This plot yielded 80 pounds less of wrappers per acre than A (cottonseed meal) and 340 pounds less than E (castor pomace). The quality of leaf was quite as good as either and was graded 11th.

Plot T, which received 175 pounds of nitrogen per acre in form of fish and nitrate of soda, *with no potash*, produced but a small quantity of wrappers of very inferior quality;—the only lot of really bad tobacco in the whole experiment field.

Nitrate of Soda, at First and Second Cultivation.

This experiment is to ascertain the effect on the crop of supplying one-third of the nitrogen of a heavy application (210 pounds per acre) as a top dressing in the form of nitrate of soda, either in one application at the time of first cultivation (Plot I), or in two applications at the time of the first and second cultivation (Plot J).

In this year the effect has been to increase the yield of wrapper leaf over that of plot H, which was dressed with the same amount of nitrogen all in the form of castor pomace, and the quality of the leaf is also somewhat better, lots I and J being graded 15th and 5th respectively, H being 18th. Different results have been obtained in previous crops, and on the whole this method of fractional fertilization has not been successful.

Stable Manure.

Plot AA was dressed in 1895 with from 10 to 12 cords of stable manure, but no "starter" or other commercial fertilizer was added, as it was thought the land was now rich enough in plant food to dispense with anything more than the manure itself supplied.

The yield of wrappers was the smallest on the whole field excepting plot T, and the quality of the crop was not more than average, and was graded 17th. In 1894, this plot was dressed with Swift-Sure Superphosphate in addition to the stable manure, and the crop, though quite small (560 pounds of wrappers per acre) was of better quality than any other in the field.

Tobacco Stems.

Plot BB, dressed with 3 tons of tobacco stems to the acre and nearly 3,000 pounds of castor pomace, yielded one of the largest crops of wrappers (1,520 pounds per acre), of rather less than average quality, graded 19th.

EFFECT OF DIFFERENT FORMS OF POTASH.

Plots A, K, L, M, N, O, P and Y were dressed with like quantities of nitrogen (in form of cottonseed meal), phosphoric acid and potash; but the potash was supplied in different forms.

The results of the experiments are summarized in the following table:

Plot,	Source of Potash.	Weight of wrappers. Long.	Short.	No. of wrapper leaves in a pound. Long.	Short.	No. of seconds during which leaf holds fire.	Relative rank.
P	Double carbonate potash and magnesia	740	330	80	94	52	1st
O	Carbonate of potash	840	310	60	86	38	4th
Y	Wood ashes	690	270	69	89	56	6th
A	Cotton hull ashes	830	220	54	84	33	14th
K	Double sulphate potash and magnesia	830	270	55	89	31	12th
L	Double sulphate potash and magnesia with lime	640	250	54	78	40	23d
M	High grade sulphate of potash and magnesia	640	250	58	73	32	21st
N	High grade sulphate of potash and magnesia with lime	840	310	56	86	40	26th

The results of these experiments agree in the main with the corresponding ones made in the three previous years. The various forms of carbonate of potash have yielded on the whole better tobacco than the sulphates, and the low grade sulphate has produced better tobacco than the high grade. Tobacco raised on high grade sulphate has each year shown a tendency to "coal" on the cigar even when it was free-burning.

The above summary presents briefly the results of the experiments of 1895. The experiments of 1896 close the series. The crop of 1896 is now in the case for fermentation and will be examined by the expert in the fall of 1897. A complete review of the whole five years' work can then be given.

EXPERIMENTS IN GROWING TOBACCO WITH DIFFERENT FERTILIZERS. SEASON OF 1896.

By E. H. Jenkins.

These experiments are in continuation of those begun in 1892 in coöperation with the Connecticut Tobacco Experiment Co. of Poquonock in the town of Windsor.

Full particulars regarding the land, the conduct of the experiments and their results are given in the Reports of this Station for 1892, pages 1 to 24; for 1893, pages 112 to 144; for 1894, pages 254 to 284; for 1895, pages 128 to 156.

Fertilizers.

The fertilizers used in 1896 were sampled and analyzed by Messrs. Winton, Ogden and Mitchell with the following results:

Composition and Cost of Fertilizers Used.

	Cost Per Ton.	Percentage Composition.		
		Nitrogen.	Phosphoric Acid.	Potash.
Nitrate of Soda	$45.00	16.00	----	----
Cotton Seed Meal	23.50	7.38	3.28	1.93
Castor Pomace	20.00	4.72	1.89	1.06
Linseed Meal	18.00	6.72	1.89	1.30
Tobacco Stems	12.00	1.90*	.60*	8.10*
Cooper's Bone	28.00	2.33	27.89	----
Cotton Hull Ashes	45.00	----	8.99	25.48
Wood Ashes	15.00	----	----	4.58
High Grade Sulphate of Potash	50.00	----	----	48.98
Carbonate of Potash	170.00†	----	----	54.10
Double Carbonate Potash and Magnesia	39.00‡	----	----	18.10
Double Sulphate Potash and Magnesia	30.00	----	----	26.44
Fish	35.00	8.33	6.84	----

The chemicals used for each plot were accurately weighed and labeled by the Station representative, mixed thoroughly and bagged by Mr. DuBon and himself.

The bags were carried to the several plots by Mr. DuBon, and their contents were sowed under his constant supervision.

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* Estimated.

† By single pound; ton rates would be much lower.

‡ Total cost of importing a one ton lot from Stassfurt.

The following table shows the plan of the experiment, the fertilizers applied, with the cost of each as far as known, and the quantities of nitrogen, phosphoric acid and potash contained in them.

FERTILIZERS APPLIED, SEASON OF 1896.

Name of Plot.	FERTILIZERS APPLIED. Pounds per Acre.	Cost per Acre.	Fertilizer contains pounds.		
			Nitrogen.	Phosphoric Acid.	Potash.
A	1423 Cotton Seed Meal 1227 Cotton Hull Ashes	$44.50	105	157	340
B	1562 Linseed Meal 1254 Cotton Hull Ashes	42.28	105	143	340
C	2371 Cotton Seed Meal 1156 Cotton Hull Ashes	53.99	175	182	340
D	2845 Cotton Seed Meal 1121 Cotton Hull Ashes	59.58	210	195	340
E	2225 Castor Pomace 2141 Cotton Hull Ashes	50.17	105	152	340
F	1562 Linseed Meal 509 Cotton Hull Ashes 242 Cooper's Bone	28.90	105	143	150
G	3707 Castor Pomace 1180 Cotton Hull Ashes	63.62	175	177	340
H	4450 Castor Pomace 1150 Cotton Hull Ashes	70.37	210	188	340
I	2225 Castor Pomace 1241 Cotton Hull Ashes 328 Nitrate of Soda* 326 Nitrate of Soda†	64.93	210	152	340
J	2225 Castor Pomace 1241 Cotton Hull Ashes 656 Nitrate of Soda	64.93	210	152	340
K	1423 Cotton Seed Meal 1182 Double Sulphate of Potash and Magnesia 396 Cooper's Bone	40.06	105	157	340
L	1423 Cotton Seed Meal 1182 Double Sulphate of Potash and Magnesia 396 Cooper's Bone 300 Lime	42.04	105	157	340
M	1423 Cotton Seed Meal 638 High Grade Sulphate of Potash 396 Cooper's Bone	38.28	105	157	340

* Applied between the rows July 7. †Applied between the rows July 20.

Fertilizers Applied, Season of 1896.

Name of Plot.	FERTILIZERS APPLIED. Pounds per Acre.	Cost per Acre.	Fertilizer contains pounds.		
			Nitrogen.	Phosphoric Acid.	Potash.
N	1423 Cotton Seed Meal 638 High Grade Sulphate of Potash 396 Cooper's Bone 300 Lime	40.26	105	157	340
O	1423 Cotton Seed Meal 578 Carbonate of Potash 396 Cooper's Bone	$71.46	105	157	340
P	1423 Cotton Seed Meal 1724 Double Carbonate Potash and Magnesia 396 Cooper's Bone	55.94	105	157	340
Q	2000 Baker's A. A. Superphosphate 4000 Baker's Tobacco Manure	----	238	452	522
R	2000 Stockbridge Tobacco Manure	----	116	227	202
S	3000 Stockbridge Tobacco Manure	----	174	340	303
T	1050 Dry Ground Fish 550 Nitrate of Soda 300 Lime	32.83	142	71	----
U	2000 Mapes' Tobacco Manure, Wrapper Brand	----	120	114	212
V	2400 Mapes' Tobacco Manure, Wrapper Brand 400 Mapes' Starter	----	157	190	268
W	2400 Mapes' Tobacco Manure, Wrapper Brand	----	145	136	254
X	2000 Sanderson's Formula for Tobacco	----	88	241	172
Y	1423 Cotton Seed Meal 6825 Wood Ashes	66.79	105	150	340
Z	1260 Dry Ground Fish 1211 Double Sulphate of Potash and Magnesia 256 Cooper's Bone	43.79	104	86	340
AA	Stable Manure 10–12 cords*	----	111	71	149
BB	3091 Tobacco Stems	36.00	111	36	486
CC	3000 Pinney's Formula Fertilizer	----	131	196	305

* Estimated to contain 111 lbs. nitrogen, 71 lbs. phosphoric acid and 119 lbs. potash.

Plowing, Planting and Care During Growth.

On April 7th and again on April 14th, the field was harrowed.

The fertilizers were evenly broadcast on the several plots, May 11th, and plowed in. The field was again harrowed on the 12th.

A few weeks before the plants were set, the field was found to be infested with cut-worms which fed upon the young weeds as they came up.

To rid the land of cut-worms, small handfuls of an even mixture of 500 pounds of damp wheat bran and 5 pounds of Paris green were dropped, about 2 paces apart, on the rows where tobacco plants were to be set. Multitudes of the worms were found, poisoned by this mixture.

The tobacco plants were set with the Bemis planter, on May 25th, 12 days after the application of Paris green. In former years a good many plants have been eaten by cut-worms the night after planting; this year not a single plant was found to be injured.

On May 30 about 100 plants in all had been destroyed by cut-worms or wire worms, and were replaced. On June 6th about 50 more were replaced. No further damage was done by worms. In each of the four previous years the cut-worms have killed large numbers of plants and in consequence the stand of tobacco has been uneven.

July 14th the first topping of the tobacco was done, about half the plants requiring it. The others were topped on the 18th. The crop was harvested on Aug. 11th and 12th.

Copious rains fell after the tobacco was set, but the crop did not start as promptly nor grow as vigorously through the season as the year before. It is probable that a part of the fertilizer was either carried out of reach of the young plants by the rains, immediately after planting, or that the roots were slow to reach it.

In 1892 excellent results followed from harrowing in the fertilizer lightly; (abundant rain followed planting).

In 1893, the fertilizer was harrowed in, but the plants were somewhat "burned" by the fertilizer; (little rain followed planting).

In 1895, excellent results followed from plowing in the fertilizer; (rather dry weather followed planting).

In 1896, the fertilizer was plowed in as in 1895, but the crop was slow in starting and backward in development till near harvest time; (abundant rains followed planting).

It is likely that soluble plant food moves easily in the very light sandy soils on which tobacco is grown, following the movement of water in the soil.

If the land is dressed with large amounts of fertilizer chemicals which are only harrowed in, and if very dry weather follows planting the tender plants may be burned, but if the fertilizer is plowed in, it is distributed in moister soil, where the roots strike down for water.

If, on the other hand, copious rain immediately follows planting, the fertilizer which has been lightly harrowed in may be carried down no further than the roots easily reach, while, if plowed in, it may be carried by the rains below this point and so be in part at least lost to the crop.

At planting time, therefore, it is not possible to determine which way of putting in fertilizer will give the better results.

Rainfall.

The rainfall during the growing season, measured in a standard rain-gauge by Mr. Adelbert DuBon, was as follows:

Date.	Inches of rainfall.	Date.	Inches of rainfall.
May 28	1.00	July 7	0.19
" 31	0.60	" 9	0.20
June 9	0.33	" 16	0.26
" 10	1.63	" 21	0.25
" 14	1.75	" 24	0.65
" 16	0.82	" 27	0.23
" 21	0.09	Aug. 2	0.73
July 4	0.63	" 9	0.12
" 5	0.32	" 14	1.24

Total, 11.04 inches.

The tobacco crop, from setting time to harvest, was in the field 79 days. On 18 or more of those days rain fell, and the longest period during which there was no rain was 13 days.

Observations of soil temperature and moisture were not made in 1896.

Harvesting, Curing, Stripping and Sorting.

The crop was harvested on Aug. 12th.

The weather was generally favorable during the period of curing, and the pole-cured crop showed neither pole-burn nor white vein.

It was taken down from the poles, cured, on Oct. 6th, and was stripped and bundled on the 7th. The sorting was begun on Oct. 26th and was finished on the 31st.

At each handling of the crop a representative of the Station was present; all weights were made and recorded, and samples drawn by him.

As the crops were sorted, samples were carefully drawn from each lot of long and short wrappers and labeled as described in the Report for 1893, p. 138. These samples were for laboratory examinations and for fermentation.

The following table gives the results of the sorting. The weights are in pounds.

For those unfamiliar with the details of sorting leaf-tobacco, it may be said that the "seconds" are the lower leaves on the stalk ("sand leaves"), smaller than those of either of the other grades, over-ripe and unfit for wrappers. The "long wrappers" and "short wrappers" are the most valuable part of the crop, the latter being smaller and lighter, and much used for cigar binders. The "top leaves" are often as large as the long wrappers, but heavier, darker in color and unripe.

WEIGHTS, IN POUNDS, OF THE BARN-CURED LEAVES FROM $\frac{1}{20}$ ACRE.
CROP OF 1896.

Plot.	Long Wrappers.	Short Wrappers.	Top Leaves.	Seconds.	Total.
A	41¾	13¼	16¾	9¼	81
B	30	12¾	17½	12	72¼
C	40¾	14¼	14½	8¼	77¾
D	47¼	13¾	17¼	8¼	86½
E	42¾	13¼	18¾	10¾	85½
F	20	10¾	17¾	12	60½
G	40¾	13½	16¾	9¾	80¾
H	47	13¾	15½	12½	88¾
I	45¼	14	18¼	9	86½
J	43¼	14¼	17¾	9¾	85
K	45¼	14¼	16¼	8¼	84
L	32¼	11¼	18¼	14	75¾
M	32¾	12½	20¾	11	77
N	40¾	14½	18¼	8¼	81¾
O	34	14½	15	8½	72
P	26¼	13¼	12¾	10½	62¾
Q	26¾	11	17¾	14½	70
R	32¼	11¼	19¼	12½	75¼
S	36	12¾	18½	9¼	76½
T	--	--	--	--	69*
U	42⅜	12⅜	18	10⅞	83⅝
V	37⅛	11⅝	19½	9	77¼
W	27⅜	10½	16⅞	9⅜	64⅛
X	30	11¼	16¼	11¼	68¾
Y	31¾	10	16¼	11½	69½
Z	37½	12½	16¼	10	76¼
AA	32½	8	18	10¼	68¾
BB	41½	14¾	15	8	79¼
CC	27	12¼	17	9¼	65½

* Crop very poor in quality. Not sorted.

Per Cent. of the Four Different Grades.

Pole-cured Crop of 1896.

Plot.	Long Wrappers.	Short Wrappers.	Total per cent. of Wrappers.	Top Leaves.	Seconds
A	52	16	68	21	11
B	42	18	60	24	16
C	52	18	70	19	11
D	55	16	71	20	9
E	50	16	66	22	12
F	33	17	50	29	21
G	50	17	67	21	12
H	53	16	69	17	14
I	52	16	68	21	11
J	51	17	68	20	12
K	54	17	71	19	10
L	43	15	58	24	18
M	42	16	58	27	15
N	49	18	67	22	11
O	47	20	67	21	12
P	42	21	63	20	17
Q	38	16	54	25	21
R	43	15	58	25	17
S	47	17	64	24	12
T	--	--	--	--	--
U	50	15	65	21	14
V	48	15	63	25	12
W	42	16	58	26	16
X	44	16	60	24	16
Y	46	14	60	23	17
Z	49	16	66	21	13
AA	47	12	59	26	15
BB	52	19	71	19	10
CC	41	19	60	26	14

Comparative Fire-holding Capacity.

Pole-cured Crop, 1896.

The method of determining the fire-holding capacity is described in the Station Report for 1892, page 17, and the meaning of the figures in the following table is described on page 296 of the present report.

Plot.	Long Wrappers.	Short Wrappers.	Calculated from the average of both.	Plot.	Long Wrappers.	Short Wrappers.	Calculated from the average of both.
A	330	259	290	P	214	159	183
B	274	237	253	Q	100	100	100
C	306	236	267	R	183	144	161
D	223	165	190	S	157	137	146
E	188	158	171	T	---	---	---
F	185	218	205	U	165	132	147
G	208	157	177	V	146	220	190
H	151	143	147	W	206	167	184
I	229	211	220	X	131	109	119
J	201	249	231	Y	288	239	262
K	137	109	121	Z	129	149	141
L	171	117	140	AA	163	134	148
M	121	119	121	BB	241	158	194
N	135	113	123	CC	126	114	119
O	187	169	177				

NUMBER OF POLE-CURED LEAVES TO THE POUND.

CROP OF 1896.

Plot.	Long Wrappers.	Short Wrappers.	Plot.	Long Wrappers.	Short Wrappers.
A	60	85	P	63	81
B	63	87	Q	58	75
C	56	82	R	54	91
D	57	68	S	64	92
E	51	83	T	--	--
F	76	102	U	63	72
G	65	78	V	61	86
H	51	79	W	62	97
I	59	83	X	61	91
J	64	83	Y	89	106
K	56	86	Z	60	88
L	54	88	AA	62	92
M	61	95	BB	59	92
N	60	84	CC	72	98
O	70	72			

The average number of short wrapper leaves to the pound was 86; of the long wrapper leaves 62.

SOME RESULTS OF THE EXPERIMENTS WITH TOBACCO FERTILIZERS FOR THE FIVE YEARS, 1892–1896.

By E. H. Jenkins.

These experiments, begun in 1892, with the co-operation of the Connecticut Tobacco Experiment Co., have been made for five consecutive years. The crop of 1896, described in the preceding paper, completes the series. Samples of this crop are now cased down for fermentation and cannot be graded as to their quality until October or November, 1897.

Final discussion of the quality of the tobacco from the several plots must, of course, be reserved till that time.

We may, however, compare the average yields of these plots for the five-year period and examine those qualities of the crop which have been determined in the unfermented leaves.

1. Effect of the Quantity of Fertilizer-nitrogen on the Amount and Quality of the Crop.

Plots A, C, D, E, G and H have received annually, for five years, 340 pounds of potash and from 140 to 190 pounds of phosphoric acid per acre, chiefly in form of cotton hull ashes.*

Plots A, C and D have also received annually cottonseed meal, and plots E, G and H, castor pomace, in such quantities that plots A and E had annually 105 pounds of nitrogen per acre, plots C and G 175 pounds and plots D and H 210 pounds of fertilizer-nitrogen. Table I shows the statistics of the crops.

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* The only other source of potash and phosphoric acid has been the nitrogenous matter (cottonseed meal or castor pomace), which supplied a comparatively small amount. This large quantity of potash was used because experienced growers suggested it and it agrees with a common practice. We believe the amount is much larger than is generally required. The amount of phosphoric acid, too, is probably largely in excess of the crop requirements, but as it came from the ashes used, the quantity could not be made less without lessening the potash supplied.

TABLE I.—TOBACCO EXPERIMENT, 1892–1896. EFFECT OF DIFFERENT AMOUNTS OF NITROGEN. YEARLY AVERAGES.

	Fertilizer-nitrogen.		Tobacco Crop, pounds per acre.				No. of pole-cured Leaves to pound.		No. of seconds holds fire.	
Plot.	Source of Nitrogen.	Pounds per acre.	Total.	Long Wrap.	Short Wrap.	Percentage of Wrap.	Long Wrap.	Short Wrap.	Long Wrap.	Short Wrap.
A	Cotton Seed Meal	105	1615	740	245	61	66	89	14	15
E	Castor Pomace ..	105	1760	803	203	60	59	84	10	15
	Average		**1688**	**772**	**224**	**61**	**63**	**87**	**12**	**15**
F	Cotton Seed Meal	175	1673	795	276	64	61	85	12	14
G	Castor Pomace ..	175	1700	769	267	61	62	81	10	13
	Average		**1687**	**782**	**272**	**63**	**62**	**83**	**11**	**14**
D	Cotton Seed Meal	210	1839	957	268	67	60	85	10	15
H	Castor Pomace ..	210	1863	996	271	68	60	84	10	12
	Average		**1851**	**977**	**269**	**68**	**60**	**85**	**10**	**14**

Table I shows that

1. 210 pounds of fertilizer-nitrogen per acre, either in form of castor pomace or cottonseed meal, have given a larger crop of tobacco annually for five years than either 105 or 175 pounds of fertilizer-nitrogen.

This gain has been in wrapper-leaf altogether; the more valuable part of the crop. The percentage of wrapper-leaf in the crop was 68 when 210 pounds of fertilizer-nitrogen were used, 63 and 61 when smaller quantities of fertilizer-nitrogen were applied.

Where 210 pounds of fertilizer-nitrogen were used, the pole-cured wrapper-leaves were very slightly heavier (60 long wrapper-leaves, 85 short wrapper-leaves to the pound) than those raised with smaller amounts of fertilizer-nitrogen (63 long wrappers, 87 short wrappers per pound). The difference in fire-holding capacity was too slight to have significance.

2. The plot having 210 pounds of nitrogen in form of cottonseed meal produced 224 pounds more of crop than the one having 105 pounds of nitrogen. At 12½ cents per pound this gain amounts to $28.06 per acre. The increased amount of fertilizer, 1500 pounds, at $25.00 per ton, costs $18.75, so that it has paid to use the larger quantity of fertilizer—provided the quality of the leaf was not damaged by it.

The quality of the 1896 crop cannot be determined till the fall of 1897, but the tobacco from plots having the largest quantity of fertilizer-nitrogen, whether cottonseed meal or castor pomace, has, on the average of four years' crops, been of better quality than that from plots with smaller amounts of fertilizer-nitrogen.

CAN PART OF A HEAVY DRESSING OF NITROGEN BE ADVANTAGEOUSLY APPLIED IN FORM OF NITRATE OF SODA, DURING THE GROWING SEASON?

(Plots I and J compared with H.)

The same quantities of cotton hull ashes were put on plots H, I and J for five years. The same quantities of nitrogen (210 pounds) were also put on these three plots.

But while the nitrogen applied to plot H was all in form of castor pomace, plots I and J received only 105 pounds of nitrogen per acre, in form of castor pomace, and the other 70 pounds in form of nitrate of soda, either in one application, plot J, or in two, plot I.

Following are the results:

TABLE II.—EFFECT OF NITRATE OF SODA ADDED DURING THE GROWING SEASON. YEARLY AVERAGES.

Source of Nitrogen.	Plot H. Castor Pomace.	Plot I. Castor Pomace and Nitrate of Soda.	Plot J. Castor Pomace and Nitrate of Soda.
Amount of Fertilizer-Nitrogen, pounds per acre	210	210	210
Yield of leaf tobacco in pounds,			
Total	1863	1860	1932
Long wrappers	996	973	1040
Short "	271	273	293
Per cent. of wrappers in Crop	68	67	69
No. of pole-cured leaves in 1 pound			
long wrappers	60	63	65
short "	84	83	80
No. of seconds holds fire, long wrappers	10	9	10
Short wrappers	12	15	16

The average yield of tobacco as well as the yield of wrapper leaves was decidedly larger on plot J, which received part of its nitrogen in a single application of nitrate of soda after the crop was nearly half grown, than on either of the other plots; the individual leaves were no heavier, nor was there any perceptible difference in fire-holding capacity. The quality of the wrapper leaf must determine whether the practice is a profitable one. The indications are that the quality of the crops, where nitrate of soda was applied after the plants were partly grown, was inferior to that of plot H, to which no nitrate was added.

COMPARISON OF COTTON SEED MEAL AND CASTOR POMACE AS TOBACCO FERTILIZERS.

Table I, page 311, gives the data necessary for this comparison. The crops fertilized with castor pomace have been uniformly larger than those fertilized with cottonseed meal, the average yearly difference for five years being 111 pounds per acre, and the difference in wrapper leaf being 25 pounds annually, in favor of castor pomace. There has been no significant difference in the weight of 100 wrapper leaves or in the fire-holding capacity.

At 12½ cents per pound, 111 pounds of tobacco would bring $13.87. As the average cost of nitrogen in castor pomace has been four cents more per pound than in cottonseed meal during the five years of this experiment, 210 pounds of fertilizer-nitrogen from castor pomace have cost $8.40 more than the same quantity of nitrogen from cotton seed. So that the net annual profit from the use of castor pomace instead of cottonseed meal is not more than $5.47 per acre, *provided the quality of the crop is the same.*

For four years the relative rank of the tobaccos grown on the several plots named in the table above has been—

TABLE III. — QUALITY OF THE TOBACCO FROM PLOTS NAMED, EXPRESSED BY THE RELATIVE RANK.

	105 lbs. Nitrogen.		175 lbs. Nitrogen.		210 lbs. Nitrogen.	
	Plot A. Cotton Seed Meal.	Plot E. Castor Pomace.	Plot C. Cotton Seed Meal.	Plot G. Castor Pomace.	Plot D. Cotton Seed Meal.	Plot H. Castor Pomace.
1892	10th	16th	2d	4th	3d	5th
1893	23	29	5	22	8	9
1894	5	28	11	15	16	14
1895	14	22	25	28	9	18
Average	**13th**	**24th**	**11th**	**17th**	**9th**	**11th**

The relative quality of tobacco from plots A, C, D, dressed with different amounts of cottonseed meal, has been 13th, 11th, 9th. The relative quality of the corresponding plots dressed with castor pomace has been 24th, 17th, 11th.

It is therefore quite clear that the average quality of the tobacco raised with cottonseed meal has been somewhat better than that of tobacco raised with castor pomace.

COMPARISON OF LINSEED MEAL WITH COTTON SEED MEAL AND CASTOR POMACE.

(Plot B compared with plots A and E.)

This test was begun in 1893 and has therefore been carried on for only four years.

Plot B was annually dressed with the same quantity of cotton hull ashes as plots A and E, but was dressed with 105 pounds of nitrogen per acre, in form of linseed meal, while A and E received like amounts of nitrogen in form of cottonseed meal and castor pomace, respectively.

The data for the comparison are as follows :

TABLE IV. — COMPARISON OF LINSEED MEAL WITH COTTON SEED MEAL AND CASTOR POMACE.

Source of Nitrogen.	Plot B.* Linseed Meal.	Plot A.* Cotton Seed Meal.	Plot E.* Castor Pomace.
Amount of Nitrogen per acre, pounds	105	105	105
Average annual yield in pounds, Total	1501	1585	1740
Long wrappers	664	732	820
Short wrappers	222	219	223
Per cent. of Wrappers in Crop	59	60	60
No. of pole-cured leaves in 1 pound long wrappers	61	63	57
Short wrappers	85	85	81
No. of seconds holds fire, long wrappers	12	14	10
short "	15	15	15

These data show that the average total yield of tobacco from linseed meal, in the four years of the test has been somewhat less than from cottonseed meal and considerably less than from castor pomace. There is a corresponding difference in the weight of the wrapper leaves.

Three of the four crops have been examined and graded as to quality. The relative ranks of those crops raised on linseed meal, plot B, were 1st, 6th, 10th, while those raised on cottonseed meal were, in the same years, 23d, 5th, 14th, and on castor pomace 29th, 28th and 22d.

In the three years of which we have complete data less tobacco was raised on linseed meal than on equivalent quantities of either castor pomace or cottonseed meal, but the quality of leaf raised on linseed meal was better than that from the other forms of nitrogen.

COMPARISON OF FISH WITH COTTON SEED MEAL AS A FERTILIZER FOR TOBACCO.

(Plot Z compared with plot K.)

Plots Z and K in 1893 and the following years were dressed with like quantities of bone and double sulphate of potash and magnesia. Each plot also received annually 105 pounds of nitrogen, plot Z in form of dry ground fish, plot K in form of cotton seed meal. The data regarding the crops are given below :

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* For the years 1893–1896 only.

TABLE V.—COMPARISON OF FISH WITH COTTON SEED MEAL AS A TOBACCO FERTILIZER.

Source of Nitrogen.	Plot Z.* Dry Fish.	Plot K.* Cotton Seed Meal.
Amount of Nitrogen per acre, pounds	105	105
Average annual yield of tobacco in pounds, total	1496	1740
Long wrappers	611	879
Short "	228	217
Per cent. of wrappers in Crop	56	63
No. of pole-cured leaves in 1 pound long wrappers	62	58
short "	82	87
No. of seconds holds fire, long wrappers	7.6	7.6
short wrappers	11.1	9.7

The average annual yield per acre from dry fish has been much less than from cottonseed meal, by about 250 pounds, and the per cent. of wrappers in the crop has been considerably smaller (56 per cent. from dry fish, 63 per cent. from cottonseed meal). The crop from dry fish in 1893 was very small, one-half what it was in the next three years, and each successive crop has been larger than the one next preceding it, indicating perhaps that the nitrogen of fish is more slowly available, and that its effects are in consequence more lasting. The tobacco of the three crops on plot K (cottonseed meal), ranked 15th, 17th and 12th. The three corresponding crops on Z (fish), have ranked 12th, 3d and 11th. Hence for three successive years quite as good tobacco, though not as many pounds per acre, has been raised with dry fish and potash salts as with an equivalent quantity of cottonseed meal and potash salts.

STABLE MANURE AND TOBACCO STEMS.

Plots AA and BB were introduced into the experiment in 1893. In 1892 when the other plots were under tillage, these plots were uncultivated and were covered with a sparse growth of poverty grass and blackberry vines. Hence a *strict* comparison of these with the other plots cannot be made.

Plot AA has been dressed annually for four years with mixed yard manure at the rate of 10–12 cords per acre, estimated to supply about 111 pounds of nitrogen, 71 pounds of phosphoric acid and 149 pounds of potash. In 1893 and 1894 it also received 500 pounds per acre of Swift-Sure Superphosphate, containing 15 pounds of nitrogen, 72 pounds of phosphoric acid and 23 pounds of potash.

Plot BB has received in each of the four years 6000 pounds of tobacco stems, containing 111 pounds of nitrogen, 36 pounds of phosphoric acid and 486 pounds of potash. In 1893 and 1894 it likewise received 500 pounds of Swift-Sure Superphosphate.

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* Four years, 1893–1896.

The average results for the four years are given in Table VI, and for comparison the corresponding figures for plot A (average of the same four years).

TABLE VI.—STABLE MANURE COMPARED WITH COTTON SEED MEAL AND TOBACCO STEMS.

Fertilizer.	Plot A.* Cotton Seed Meal and Cotton Hull Ashes.	Plot AA.* Stable Manure.	Plot BB.* Tobacco Stems.
Average yearly yield of leaf-tobacco, pounds per acre	1585	1390	1654
Average yearly yield of long wrappers, pounds per acre	733	470	745
Average yearly yield of short wrappers, pounds per acre	219	211	231
Per cent. of wrappers in crop	60	49	59
No. of pole-cured leaves in 1 pound of long wrappers	63	64	67
No. of pole-cured leaves in 1 pound of short wrappers	85	74	85
No. of seconds holds fire, long wrappers	14	10	10
No. of seconds holds fire, short wrappers	15	12	12

The much smaller crops raised on stable manure are explained in part by the fact that the nitrogen of stable manure is far less readily available than that of either stems or cottonseed meal.

The views of growers in the Connecticut and Housatonic valleys regarding the value of stable manure are widely divergent. Some affirm that they would use nothing else if they could get enough stable manure; others would not use manure at all for this crop. It is certainly true that some of the finest broadleaf is grown on land dressed for the most part at least with manure. Many growers also give their lands a light dressing of yard manure every few years.

When no other fertilizers are used in connection with it the crop is rather light, at least for the first few years, till the land is well filled with the manure. The leaf is said to "lack finish" when pole-cured, *but after fermentation* it is said to have a "finish" superior to that raised on chemicals alone. We believe that an annual dressing of manure will often pay well, supplementing it with a supply of more quickly available plant food in the form of fertilizer chemicals.

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* Average of *four* years.

The successive crops from the plot AA, dressed with manure, ranked 13th, 17th and 1st.

Those from the plot BB (tobacco stems) ranked 16th, 21st, 19th, while the three corresponding crops on cottonseed meal ranked 23d, 5th and 14th.

COMPARISON OF THE EFFECTS OF VARIOUS FORMS OF POTASH ON THE QUALITY OF THE CROP.

(Plots A, K, L, M, N, O, P,* Y.*)

All of the plots in this series were dressed each year with 105 pounds of nitrogen per acre, in form of cotton seed meal (about 1500 pounds per acre).

All were likewise dressed annually with 340 pounds per acre of potash, *but in different forms.* Thus A received cotton hull ashes; K, double sulphate of potash and magnesia; L, double sulphate of potash and magnesia, *with lime* at the rate of 300 pounds per acre; M, high grade sulphate of potash; N, high grade sulphate of potash and magnesia, *with lime* at the rate of 300 pounds per acre; O, carbonate of potash; P, double carbonate of potash and magnesia; and Y, wood ashes.

Plots A and Y received about 150 pounds of phosphoric acid annually per acre, chiefly in the ashes. The like quantity was supplied to the other plots in form of Cooper's bone.

The averages of the five years' course of experiments are given in Table VII. (See following page.)

The largest average yield of leaf tobacco (1771 pounds per acre) and of wrapper leaf (1151 pounds per acre), and the highest per cent. of wrapper leaf (65) in the crop, was taken from plot K, dressed with double sulphate of potash and magnesia as a source of potash.

The leaves were heavier (60 and 82 long and short wrapper leaves to the pound) than those from the other plots named, and their fire-holding capacity was less than that from any except those dressed with high grade sulphate of potash.

The quality of the wrappers, judged from the four crops already examined by the expert, was about the same as that of wrappers from plot A, where cotton hull ashes were used.

The addition of lime had little effect on the quality of leaf.

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* Four years only.

TABLE VII.—COMPARISON OF THE EFFECTS OF VARIOUS FORMS OF POTASH AS TOBACCO FERTILIZERS.

	Plot A.	Plot K.	Plot L.	Plot M.	Plot N.	Plot O.	Plot P.*	Plot Y.*
Source of Potash.	Cotton Hull Ashes.	Double Sulphate of Potash and Magnesia.	Double Sulphate of Potash and Magnesia with Lime.	High Grade Sulphate of Potash.	High Grade Sulphate of Potash with Lime.	Carbonate of Potash.	Double Carbonate of Potash and Magnesia.	Wood Ashes.
Yield of Tobacco per acre	1615	1776	1664	1709	1690	1549	1416	1482
Long Wrappers	740	874	705	653	742	672	601	631
Short Wrappers	241	277	277	253	272	257	263	199
Per cent. of wrappers in crop	61	65	59	53	60	60	61	56
No. of pole-cured leaves in 1 lb. long wrappers	66	60	63	67	61	70	66	69
No. of pole-cured leaves in 1 lb. short wrappers	89	82	87	86	85	89	87	91
No. seconds holds fire, long wrappers	14	8	8	7	8	10	13	12
short wrappers	15	10	10	10	11	14	11.9	17
Relative rank	10–23–5–14	6–15–17–12	9–25–7–23	23–28–26–21	7–19–25–26	1–24–13–4	14–2–1	10–12–6

* Four years.

The plots dressed with high grade sulphate of potash with and without lime, M and N, bore a larger average crop than any except K, and rather more wrappers than most of the others. But the leaves held fire for a shorter time than those from the other plots, and the quality of the four crops already examined was poorer than that of any others in the series.

Plots O, P, Y, having as their source of potash, carbonate of potash, double carbonate of potash and magnesia and wood ashes respectively, bore lighter crops than the others in this series, but the average quality, judged from the four crops from O and three crops from P and Y, already examined, was the best in the whole experiment field.

EFFECTS OF SMALLER QUANTITIES OF POTASH IN THE FERTILIZER.

Plots B and F in 1892 received a dressing of cotton hull ashes containing 340 pounds of potash per acre. B also received 140 pounds per acre of nitrogen in cottonseed meal; F received the same quantity of nitrogen in form of castor pomace.

For the next four years both plots received yearly like quantities of nitrogen and phosphoric acid, but plot F received only 150 pounds of actual potash per acre, while B received 340 pounds,—both in forms of cotton hull ashes.

The following table shows the average results of four years' test.

TABLE VIII.—EFFECTS OF DIFFERENT QUANTITIES OF POTASH.

Source of Fertilizer-Potash.	Plot B. Cotton Hull Ashes.	Plot F. Cotton Hull Ashes.
Amount of Fertilizer-Potash per acre, pounds	340	150
Average yearly yield of leaf tobacco, pounds per acre	1501	1600
" " " long wrappers, " "	664	669
" " " short " " "	222	260
Per cent. of wrappers in crop	59	58
No. of pole-cured leaves in 1 pound of long wrappers	68	66
" " " 1 " short "	89	91
No. of seconds holds fire, long wrappers	12	9
" " " short "	17	14

The results of four years' tests show a somewhat larger average crop on plot F, which received annually 150 pounds of potash, and over 40 pounds more annually of wrapper leaves. The number of pole-cured leaves to the pound was about the same on both plots, those from plot B holding fire a little longer.

There was little difference in the quality of the three crops which have been fermented.

In this experiment, therefore, about 900 pounds of cotton hull ashes per acre, or 190 pounds of potash, were annually put on the land in excess of the crop requirements.

As has been shown in previous reports, an average tobacco crop of 1800 pounds per acre, takes from the land not more than 150 pounds of potash in stalks and leaves. When land has been well fertilized for some years, it is probable that 150 pounds of water-soluble potash annually applied is enough to secure a full crop of tobacco.

An excess of potash, however, tends to neutralize the otherwise injurious effects of an excess of chlorides in the soil.

Tobacco Raised on Mixed Fertilizers supplied by Manufacturers.

Plot Q received per acre annually for five years, 2000 pounds of AA Superphosphate and 4000 pounds of Baker's Tobacco Manure, made and supplied by H. J. Baker & Bro. of New York. The two supplied 238 pounds of nitrogen, 452 pounds of phosphoric acid and 522 pounds of potash.

Plot R received per acre annually 2000 pounds of Stockbridge Tobacco Manure and 500 pounds of the same, used as a starter. The two supplied 154 pounds of nitrogen, 307 pounds of phosphoric acid and 278 pounds of potash.

Plot S received in 1892, 4000 pounds per acre of Bowker's Tobacco Manure. In 1893 and each succeeding year, 3000 pounds of Stockbridge Tobacco Manure and 500 pounds of Stockbridge Tobacco Starter were used, the two containing 209 pounds of nitrogen, 393 pounds of phosphoric acid and 396 pounds of potash.

The fertilizers for plots R and S were made and supplied by the Bowker Fertilizer Co. of Boston and New York.

Plot U received in 1892, per acre, 500 pounds lime, 500 pounds of Mapes' Tobacco Starter and 2600 pounds of Mapes' Wrapper Brand Tobacco Manure. In 1893 and the following years it received 600 pounds per acre of Mapes' Tobacco Starter and 2200 pounds of Mapes' Wrapper Brand Tobacco Manure, the two containing 158 pounds of nitrogen, 211 pounds of phosphoric acid and 278 pounds of potash.

Plot V received per acre in 1892, 500 pounds of lime, 500 pounds of Mapes' Tobacco Starter and 2600 pounds of Special Tobacco Manure. In 1893 it received 800 pounds of Starter and 2000 pounds of Mapes' Wrapper Brand Tobacco Manure. In 1894 and the following years it received 400 pounds of Starter and 2400 pounds of Wrapper Tobacco Manure. These supplied 163 pounds of nitrogen, 196 pounds of phosphoric acid and 294 pounds of potash.

Plot W received per acre in 1892, 500 pounds of lime, 500 pounds of Tobacco Starter and 2600 pounds of Special Tobacco Manure. In 1893 it received 1000 pounds of Starter and 1800 pounds of Wrapper Tobacco Manure. In 1894 and the following years it received 2400 pounds of Wrapper Tobacco Manure, supplying 151 pounds of nitrogen, 143 pounds of phosphoric acid and 280 pounds of potash.

The fertilizers for plots U, V and W were made and supplied by the Mapes' Formula and Peruvian Guano Co. of New York City.

Plot X received per acre in 1892, 6000 pounds of Sanderson's Tobacco Manure, and in 1893 and each of the following years it received 2000 pounds of the same brand of fertilizer, supplying 103 pounds of nitrogen; 281 pounds of phosphoric acid and 105 pounds of potash.

The fertilizers for this plot were made and supplied by L. Sanderson, New Haven.

The results of this series are given in the following table, and are submitted without further comment.

TABLE IX.—EFFECTS OF FERTILIZERS MADE AND SUPPLIED BY THE FIRMS NAMED.

Name of Manufacturer.	Baker.	Bowker.	Bowker.	Mapes.	Mapes.	Mapes.	Sanderson
Plot.	Q.	R.	S.	U.	V.	W.	X.
POLE-CURED CROP.							
Total crop, pounds per acre	1892	1614	1770	1991	1624	1600	1605
Long wrappers, " "	896	673	893	1039	796	764	755
Short " " "	252	247	273	256	226	228	240
Per cent. of wrappers	61	57	66	65	63	62	62
No. of long wrapper leaves per pound	58	64	61	59	61	63	61
No. of short wrapper leaves per pound	80	73	86	77	86	94	86
Holds fire, seconds, long wrappers	6.0	9.0	8.0	7.0	8.0	10.0	6.0
Holds fire, seconds, short wrappers	7.0	11.0	12.0	10.0	12.0	12.0	7.0

The relative rank of the tobacco from these plots, during the past four years, has been :—

Q	Baker's	15th,	20th,	29th,	24th
R	Bowker's	13th,	17th,	23d,	7th
S	"	11th,	7th,	22d,	8th
U	Mapes'	20th,	4th,	18th,	13th
V	"	24th,	11th,	24th,	3d
W	"	18th,	2d,	8th,	2d
X	Sanderson	21st,	27th,	9th,	27th

THE EFFECTS OF FERTILIZERS ON THE COMPOSITION OF WRAPPER LEAF TOBACCO.*

The analyses of leaf tobacco given in this paper were made on samples carefully drawn from the crops of plots each of which had an area of $\frac{1}{20}$ acre.

For at least four years, and in most cases, for five years, each of these plots had been dressed with fixed amounts of nitrogen, phosphoric acid and potash, which were the same each year and were derived from the same materials annually. The comparative quality of the crops from each plot has been determined annually after fermentation, by an expert.

The crops harvested in the last year of the experiment should show more clearly than those of a test made in a single year, the special effects which the several fertilizers have had on the chemical composition of the wrapper leaf as well as on its quality.†

The samples analyzed were taken from the following plots, and each will be referred to hereafter by the letter designating the plot on which it grew.

Table I.—Description of Plots. Crop of 1896.

		Quantity of Fertilizer Ingredients applied, lbs. per acre.			Yield of Tobacco in 1896, lbs. per acre.		
Plot.	Fertilizers annually applied.	Nitrogen.	Phos. Acid.	Potash.	Total.	Long Wraps.	Short Wraps.
P	Cotton seed meal, double carbonate potash and magnesia, bone	105	157	340	1255	525	265
D	Cotton seed meal, cotton hull ashes	210	195	340	1730	945	275
F	Linseed meal, cotton hull ashes, bone	105	143	150	1210	400	215
Y	Cotton seed meal, wood ashes	105	150	340	1390	635	200
AA	Horse manure	111	71	149	1375	650	160
O	Cotton seed meal, carbonate of potash, bone	105	157	340	1440	680	290
H	Castor pomace, cotton hull ashes	210	188	340	1775	940	275
L	Cotton seed meal, double sulphate potash and magnesia, bone	105	157	340	1515	645	225
BB	Tobacco stems	111	36	486	1585	830	295
M	Cotton seed meal, high grade sulphate of potash, bone	105	157	340	1540	645	250

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* All the analyses given below were made by Messrs. Winton, Ogden and Mitchell. The results have been prepared for publication by the Vice-Director.

† The quality of the leaf is the sum of all those factors which the dealer and the cigar manufacturer regard in making their selection for purchase. Color,

The quality of the tobacco from these several plots cannot be learned till the autumn of 1897, after it has finished fermentation in the case. Lot P has ranked highest, on the average, for the previous years. D, F, Y, and AA have ranked next, all of them nearly alike, then follow O, H and L in the order given, then BB, while M has been decidedly the poorest of all. It is, however, quite possible that the comparative quality of the crops of 1896, from which these samples were taken, will differ from this average of the previous years.

The relative ranks of the pole-cured long and short wrappers of 1896, *as regards fire-holding capacity alone*, are as follows:

	1st.	2d.	3d.	4th.	5th.	6th.	7th.	8th.	9th.	10th.
Long wrappers,	Y	BB	D	P	O	F	L	AA	H	M
Short wrappers,	Y	F	O	D	P	BB	H	AA	M	L

Preparation of the Samples.

Each sample consisted of twelve hands, about fifteen wrappers to the hand, which were carefully drawn for the purpose, when the tobacco was sorted. These samples were dried for a short time at a low heat, not over 24° C., pulverized and kept in well-stoppered bottles for analysis.

Methods of Analysis.

Water, fiber, and ether extract were determined as recommended by the Association of Official Chemists.

Protein was calculated by subtracting from the total nitrogen those portions which were in form of nicotine and nitric acid, and multiplying the remainder by the factor 6.25.

Nicotine was determined by the method of Kissling, Fres. Zeitschr., XXI, p. 64.

Nitric Acid was extracted with 85 per cent. alcohol and determined by the method of Schulze-Tiemann, from the volume of nitric oxide gas evolved.

size, "grain," "finish," burn, size and kind of vein and stem, all go to make up the "quality" of which the dealer and cigar maker are the sole judges.

While it is true that good burning quality is essential to wrapper leaf tobacco, it is also true that to meet the present requirements of the market, other things are also essential which cannot be measured—like the burn—by any laboratory tests and can only be properly judged by one who is in touch with the trade in leaf tobacco.

Ash was determined in 100 grams of the dry tobacco by careful incineration of a weighed quantity of the tobacco in a platinum dish at a heat below redness. Owing partly to the presence of nitrates, as well as to the large amounts of lime and magnesia present, it is particularly easy to nearly free the ash of tobacco from coal at a low heat.

Nitrogen-free extract was determined as usual by difference.

The Tables of Analyses.

Tables II and III, given on page 325, show the composition of the air-dry leaves. The percentage of water ranges from 7.24 to 9.95. With this amount of water the leaves are very brittle and can be easily pulverized.

Considerably more sand adheres to the short than to the long wrappers because the former are nearer the base of the stalk. The average per cent. of adhering sand in the short wrappers is 6.52, and in the long wrappers 2.31 per cent.

Neither the moisture nor adhering sand are of any significance in studying the effects of the fertilizers, and the foregoing analyses have therefore been recalculated to a water-free and sand-free basis, as shown in Tables IV and V, page 326.

Tables VI and VII give the analyses of the crude ash of the several lots of tobacco, containing small quantities of hygroscopic water and of coal from imperfectly burned organic matters, and very considerable quantities of sand which adheres to the surface of the leaves, even after curing.

The crude ash also contains a comparatively large amount of carbonic acid, which is not found in the unburned leaf, but results from the destruction of the organic matter of the plant.

In Tables VIII and IX, these things, water, sand and carbonic acid, have been omitted and the analyses recalculated to "Pure Ash."

ANALYSES OF AIR-DRY LEAF TOBACCO.

TABLE II.—LONG WRAPPERS. UNFERMENTED CROPS OF 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Water	9.76	9.25	9.95	8.53	9.01	8.23	9.30	9.01	7.75	8.16
Sand	2.34	2.72	1.75	2.53	1.98	2.44	2.45	2.35	1.56	3.05
Pure ash*	13.92	15.88	13.78	15.43	16.25	14.38	15.45	16.25	15.33	16.28
Ether extract	4.64	4.10	4.75	4.05	5.15	4.73	4.28	4.34	4.77	4.35
Fiber	12.16	11.21	12.29	11.83	13.15	12.28	11.38	12.24	12.35	12.55
Nicotine	3.22	2.75	2.96	2.64	2.38	2.85	2.90	2.56	3.32	2.50
Nitric acid	1.30	3.66	.54	1.27	.89	1.62	3.31	1.27	3.12	.54
Proteids, etc.†	17.13	16.25	15.75	15.69	15.19	17.00	16.69	16.06	17.19	16.06
Nitrogen-free extract	35.53	34.18	38.23	38.03	36.00	36.47	34.24	35.92	34.61	36.51
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Crude ash	20.76	24.09	20.24	23.73	22.15	22.91	23.05	23.52	23.10	25.26
Nitrogen as nicotine	.56	.48	.51	.46	.41	.49	.50	.44	.57	.43
Nitrogen as nitric acid	.34	.95	.14	.33	.23	.42	.86	.33	.81	.14
Nitrogen as proteids, etc.	2.74	2.60	2.52	2.51	2.43	2.72	2.67	2.57	2.75	2.57
Total nitrogen	3.64	4.03	3.17	3.30	3.07	3.63	4.03	3.34	4.13	3.14

* Free from sand, water, carbonic acid and charcoal.

† Total nitrogen, less nitrogen as nicotine and nitric acid, × 6.25.

TABLE III.—SHORT WRAPPERS. UNFERMENTED CROPS OF 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Water	9.65	8.35	9.41	9.22	9.11	7.24	8.19	8.14	8.33	7.58
Sand	6.72	7.57	4.71	5.04	6.22	6.94	7.96	6.97	5.01	8.04
Pure ash*	14.61	16.71	15.28	16.62	17.45	15.62	16.91	17.94	17.45	17.90
Ether extract	4.85	4.45	5.27	4.53	5.09	4.85	4.35	4.33	5.04	4.61
Fiber	10.69	10.12	12.37	11.27	11.98	11.00	10.20	10.68	11.21	10.95
Nicotine	2.93	2.26	2.33	1.98	1.99	2.40	2.16	2.15	2.18	1.89
Nitric acid	.56	2.08	.23	.60	.35	.71	2.91	.46	2.93	.27
Proteids, etc.†	10.87	11.50	11.31	11.25	11.00	11.62	12.44	10.87	12.37	11.62
Nitrogen-free extract	39.12	36.96	39.09	39.49	36.81	39.62	34.88	38.46	35.48	37.14
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Crude ash	26.47	30.85	25.29	28.67	28.51	30.11	30.63	30.58	29.77	32.95
Nitrogen as nicotine	.51	.39	.40	.34	.37	.41	.37	.37	.38	.33
Nitrogen as nitric acid	.15	.54	.06	.16	.09	.19	.76	.12	.76	.07
Nitrogen as proteids, etc.	1.74	1.84	1.81	1.80	1.76	1.86	1.99	1.74	1.98	1.86
Total nitrogen	2.40	2.77	2.27	2.30	2.19	2.46	3.12	2.23	3.12	2.26

* Free from sand, water, carbonic acid and charcoal.

† Total nitrogen, less nitrogen as nicotine and nitric acid, × 6.25.

ANALYSES OF LEAF-TOBACCO FREE FROM WATER AND SAND. (CALCULATED FROM TABLES II AND III.)

TABLE IV.—LONG WRAPPERS. UNFERMENTED CROPS OF 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Pure ash*	15.84	18.04	15.60	17.35	18.26	16.10	17.51	18.33	16.90	18.34
Ether extract	5.28	4.66	5.38	4.55	5.78	5.29	4.85	4.90	5.26	4.90
Fiber	13.84	12.73	13.91	13.30	14.77	13.75	12.90	13.81	13.62	14.13
Nicotine	3.66	3.12	3.35	2.97	2.67	3.19	3.29	2.89	3.66	2.81
Nitric acid	1.48	4.16	.62	1.43	1.00	1.81	3.76	1.43	3.44	0.61
Proteids, etc.†	19.49	18.46	17.84	17.64	17.07	19.03	18.91	18.12	18.96	18.09
Nitrogen-free extract	40.41	38.83	43.30	42.76	40.45	40.83	38.78	40.52	38.16	41.12
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Nitrogen as nicotine	.64	.55	.58	.52	.46	.55	.57	.50	.63	.48
Nitrogen as nitric acid	.39	1.08	.16	.37	.26	.47	.97	.37	.89	.16
Nitrogen as proteids, etc.	3.11	2.95	2.85	2.82	2.73	3 04	3.03	2.90	3.03	2.89
Total nitrogen	4.14	4.58	3.59	3.71	3.45	4.06	4.57	3.77	4.55	3.53

* Free from sand, water, carbonic acid and charcoal.

† Total nitrogen, less nitrogen as nicotine and nitric acid, × 6.25.

TABLE V.—SHORT WRAPPERS. UNFERMENTED CROPS OF 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Pure ash*	17.47	19.88	17.80	19.38	20.61	18.20	20.16	21.13	20.13	21.21
Ether extract	5.80	5.29	6.13	5.28	6.01	5.65	5.19	5.10	5.82	5.46
Fiber	12.78	12.03	14.40	13.14	14.15	12.82	12.16	12.58	12.93	12.98
Nicotine	3.50	2.69	2.71	2.31	2.36	2.80	2.58	2.53	2.52	2.24
Nitric acid	.67	2.47	.27	.70	.41	.83	3.47	.54	3.38	.32
Proteids, etc.†	13.00	13.67	13.16	13.12	12.99	13.54	14.84	12.80	14.27	13.77
Nitrogen-free extract	46.78	43.97	45.53	46.07	43.47	46.16	41.60	45.32	40.95	44.02
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Nitrogen as nicotine	.61	.46	.47	.40	.40	.48	.44	.44	.44	.39
Nitrogen as nitric acid	.18	.64	.07	.18	.11	.22	.90	.14	.87	.08
Nitrogen as proteids, etc.	2.08	2.19	2.10	2.10	2.08	2.16	2.38	2.04	2.29	2.21
Total nitrogen	2.87	3.29	2.64	2.68	2.59	2.86	3.72	2.62	3.60	2.68

* Free from sand, water, carbonic acid and charcoal.

† Total nitrogen, less nitrogen as nicotine and nitric acid, × 6.25.

Analyses of the Crude Ash of Leaf-Tobacco.

Table VI.—Long Wrappers. Unfermented Crops of 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Water	1.18	.36	.37	.29	.59	.49	.51	.24	.96	.25
Carbonic acid	21.13	22.85	23.06	24.00	17.18	25.69	22.03	19.99	25.75	22.86
Charcoal	.35	.35	.34	.44	.56	.70	.46	.35	.45	.73
Sand	11.27	11.31	8.63	10.66	8.95	10.66	10.64	10.02	6.77	12.09
Silica	1.10	1.10	1.00	.76	.76	.90	1.02	.89	.72	.85
Potash	30.53	29.26	28.50	27.40	35.15	29.22	29.80	26.68	35.67	24.88
Soda	.72	.48	.58	.44	.29	.37	.54	.34	.32	.46
Lime	16.03	20.10	21.06	22.60	14.53	22.50	18.90	22.23	18.15	25.11
Magnesia	11.02	8.03	8.65	6.14	8.92	3.21	8.80	6.13	4.54	2.25
Oxide of iron and alumina	1.38	1.34	1.00	1.12	.84	1.26	1.23	1.23	.82	1.34
Phosphoric acid	2.55	2.23	2.30	2.12	2.50	2.24	2.28	2.73	1.98	3.07
Sulphuric acid	3.30	2.90	4.63	3.46	3.97	2.50	3.59	7.68	3.04	6.00
Chlorine	.56	.60	.44	1.27	8.26	.59	1.24	1.52	1.42	.62
	101.12	100.91	100.56	100.70	102.50	100.43	101.04	100.03	100.59	100.51
Oxygen equivalent to chlorine	.13	.13	.10	.28	1.86	.13	.38	.33	.31	.14
	100.99	100.78	100.46	100.42	100.64	100.30	100.66	99.70	100.28	100.37

Table VII.—Short Wrappers. Unfermented Crops of 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Water	2.00	.45	.60	.45	.53	.58	.82	.41	.62	.42
Carbonic acid	17.27	19.59	20.18	22.84	15.31	21.88	17.61	17.96	23.14	19.40
Charcoal	1.23	1.18	.93	1.26	1.56	1.87	.67	.59	.86	1.16
Sand	25.40	24.53	18.62	17.57	21.83	23.05	25.99	22.79	16.82	24.43
Silica	1.33	1.50	1.46	.99	1.10	1.40	1.79	1.11	1.15	1.28
Potash	25.57	21.82	24.09	24.02	26.14	23.31	24.56	21.01	30.13	19.89
Soda	.42	.64	.81	.72	.40	.40	.57	.42	.64	.49
Lime	10.35	18.45	18.75	21.10	14.35	19.78	14.13	19.75	17.52	21.95
Magnesia	12.34	6.81	8.72	5.33	8.37	2.68	8.90	5.87	4.10	2.56
Oxide of iron and alumina	1.42	1.38	1.34	1.38	1.71	1.38	1.14	1.60	1.36	1.14
Phosphoric acid	1.57	1.57	1.64	1.41	1.82	1.36	1.44	1.76	1.12	2.05
Sulphuric acid	1.97	1.77	3.40	2.59	2.76	1.36	2.24	6.59	2.02	4.74
Chlorine	.27	.26	.25	.58	5.88	.29	.57	.69	.73	.28
	101.14	99.95	100.79	100.24	101.76	99.34	100.43	100.55	100.21	99.79
Oxygen equivalent to chlorine	.06	.05	.05	.13	1.32	.06	.12	.15	.16	.06
	101.08	99.90	100.74	100.11	100.44	99.28	100.31	100.40	100.05	99.73

ANALYSES OF THE PURE ASH OF LEAF-TOBACCO.

TABLE VIII.—LONG WRAPPERS. UNFERMENTED CROPS OF 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Silica	1.64	1.67	1.47	1.17	1.04	1.43	1.52	1.29	1.09	1.32
Potash	45.54	44.40	41.88	42.14	47.91	46.56	44.46	38.62	53.76	38.61
Soda	1.07	.73	.85	.68	.40	.59	.81	.49	.48	.71
Lime	23.89	30.50	30.95	34.76	19.80	35.85	28.20	32.17	27.35	38.98
Magnesia	16.43	12.18	12.70	9.44	12.16	5.12	13.13	8.87	6.84	3.49
Oxide of iron and alumina	2.06	2.03	1.47	1.72	1.14	2.01	1.84	1.78	1.24	2.08
Phosphoric acid	3.80	3.38	3.38	3.26	3.41	3.57	3.40	3.95	2.98	4.76
Sulphuric acid	4.92	4.40	6.80	5.32	5.41	4.14	5.35	11.11	4.58	9.31
Chlorine	.84	.91	.65	1.95	11.26	.94	1.85	2.20	2.14	.96
	100.19	100.20	100.15	100.44	102.53	100.21	100.56	100.48	100.46	100.22
Oxygen equivalent to chlorine	.19	.20	.15	.44	2.53	.21	.56	.48	.46	.22
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE IX.—SHORT WRAPPERS. UNFERMENTED CROPS OF 1896.

Plot.	P.	D.	F.	Y.	AA.	O.	H.	L.	BB.	M.
Silica	2.41	2.77	2.41	1.70	1.80	2.69	3.24	1.89	1.95	2.36
Potash	46.34	40.29	39.88	41.43	42.70	44.92	44.48	35.82	51.41	36.62
Soda	.76	1.18	1.34	1.24	.65	.77	1.03	.72	1.09	.90
Lime	18.76	34.07	31.04	36.39	23.45	38.11	25.59	33.68	29.90	40.41
Magnesia	22.37	12.58	14.44	9.19	13.68	5.16	16.12	10.00	6.99	4.71
Oxide of iron and alumina	2.57	2.55	2.22	2.37	2.79	2.66	2.06	2.73	2.32	2.10
Phosphoric acid	2.84	2.90	2.71	2.43	2.97	2.62	2.61	3.00	1.91	3.77
Sulphuric acid	3.57	3.27	5.63	4.47	4.51	2.62	4.06	11.23	3.45	8.72
Chlorine	.49	.48	.41	1.00	9.61	.56	1.03	1.18	1.25	.52
	100.11	100.09	100.08	100.22	102.16	100.11	100.22	100.25	100.27	100.11
Oxygen equivalent to chlorine	.11	.09	.08	.22	2.16	.11	.22	.25	.27	.11
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Discussion of the Tables of Analyses.

We are here concerned chiefly with the effects of fertilizers on the chemical composition of the crops. The relation between the chemical composition and the quality of the wrapper leaf of 1896, cannot be fully considered until the samples have been fermented and graded according to their quality. Tables IV and V show that the short wrappers have about two per cent. more of ash or mineral matter than the long wrappers, half a per cent. more of ether extract (fat, wax, chlorophyl, etc.), and about four per cent. more of "nitrogen-free extract" (sugar, starch, gum, etc.).

On the other hand they have less fiber by about 0.7 per cent., less nicotine by 0.5 per cent., less nitric acid by .67 per cent., and less protein by 3.85 per cent.

The explanation of these differences is in the facts that the short wrappers are rather more mature at harvest than the long wrappers, they are smaller and have perhaps already returned to the stalk and to the upper leaves a portion of their substance, particularly nitrogenous matter, which is always most abundant, proportionally, in rapidly growing parts,—and in the seed.

There appear to be no differences in the percentages of ether extract, fiber and nitrogen-free extract which can be connected with differences in the fertilizers used.

There is a range of 3.7 per cent. in the amount of pure ash of the short wrappers and of 2.7 per cent. in the ash of the long wrappers.

The wrappers from M, fertilized with high grade sulphate of potash, Cooper's bone and cottonseed meal, and which were decidedly inferior to the other lots in quality in the three years previous, have the largest per cent. of ash.

Most striking are the percentages of nitric acid. A small amount of nitrate is almost always found in wrapper-leaf tobacco. The wrappers from plots D and H, which were annually dressed with twice as much fertilizer-nitrogen as the others, and also those from plot BB, which was dressed with 111 pounds of fertilizer-nitrogen in form of tobacco stems, contained very much more nitrate than any other of the tobaccos.

The long wrappers from the three plots named contained 4.16, 3.76 and 3.44 per cent. respectively, while the highest per cent. in any other lot examined was 1.81. The short wrappers from the same plots contained 2.47, 3.47 and 3.38 per cent., while the highest per cent. in any other lot was .83.

Where available nitrogen is present in considerable excess of the crop requirements, as it undoubtedly was on plots D and H, it is to be expected that more nitrogen may pass into the plant than is needed for its development and may be deposited in the tissues as nitrate of potash.

The high percentage of nitrates in BB cannot be thus explained. When the normal development of the plant is hindered by drought or other unfavorable influence, nitrogen may be taken up from the soil as nitrates which the plant is unable to utilize for the production of proteids or other nitrogenous organic matters. There is, however, no other indication that the tobacco grown on this plot suffered from any unfavorable influences other than affected all the rest of the field.

The percentage of protein in the long wrappers ranges from 17.1 to 19.5. The three plots, D, H and BB, which had the highest per cent. of nitrates, are surpassed by only two lots, O and P, in percentage of protein.

The percentage of protein in the short wrappers ranges from 10.09 to 12.4, and here, too, the three lots, D, H and BB, show a higher percentage of protein than most of the others.

The highest percentage of nicotine is found in both long and short wrappers from plot P, dressed with double carbonate of potash and magnesia, cotton seed meal and bone. Tobacco from this plot has been of better average quality, in the three years 1893, '94 and '95, than that from any other of those represented in this table.

The effect of fertilizers on the composition of the ash, as shown in Tables VIII and IX, is very marked.

There are no striking differences in the composition of the ash of the long and short wrappers. The ash of the short wrappers contains a somewhat larger percentage of silica, soda, lime, magnesia, and oxide of iron than the long wrappers, while the latter contain correspondingly more potash, phosphoric acid, sulphuric acid and chlorine than the short wrappers.

These differences are fully explained by the fact that the short wrappers were more mature than the long wrappers when harvested.

In the following paragraphs reference is made to the long wrappers only, except where the short wrappers are specially mentioned.

1. Potash ranges from 53.76 to 38.61 per cent. The per cent.

is highest on tobacco from plot BB, which received annually most fertilizer-potash (in form of tobacco stems). It is least in tobacco from plots L and M, both of which received 340 pounds of fertilizer-potash annually in form of sulphate, M as high grade sulphate, L as low grade sulphate. The per cent. of potash in lots L and M is even less than in lots AA and F, which received only 150 pounds of fertilizer-potash yearly, but in form of manure or of cotton hull ashes.

It appears, therefore, that from equal quantities of fertilizer-potash, added presumably quite in excess of crop requirements, the tobacco crop took up much less from forms containing sulphate than from those containing potash as carbonate, plots O, P, D, F and Y.

The tobacco which held fire longest was lot Y, in which the per cent. of potash was less than the average. The per cent. of lime and magnesia taken together is, however, larger than in any other lot.

Next in fire-holding capacity among the long wrappers is BB, which contains more potash than any others, while the per cent. of lime and magnesia is smaller than any others. Lot D comes next, in which the per cent. of potash is about the average, while the sum of the per cents. of lime and magnesia is higher than any except Y and F.

Lot M had the poorest fire-holding capacity. It contained less potash than any other lot, more lime and magnesia than most, more phosphoric acid than any and more sulphuric acid than any except L.

In general the same things hold true of the short wrappers. The relative fire-holding capacity of the short wrappers is, however, not the same. Lot Y held fire longest, followed by F, O and D in the order named. Lot L had the least fire-holding capacity and M next.

2. The percentage of lime in the long wrappers ranges from 19.80 to 38.98. It is least in lot AA (stable manure), next in lot P (bone, carbonate of potash and magnesia and cotton seed meal), next in BB (stems).

Lot M, which received high grade sulphate of potash with lime and cotton seed meal, contained most lime, and lot O came next in this respect.

Lots M and O, which have most lime, have least magnesia, while those lots having least lime have relatively the most magnesia. The percentage of lime in the pure ash of the long wrappers ranges from 19.8 to 38.98 per cent., and magnesia from 3.49 to 16.43 per cent. But the percentages of lime and magnesia, *taken together*, show a much narrower range, viz. from 31.9 to 43.65.

Plot P received annually a dressing of magnesia amounting to 300 pounds or more, plot Y received annually over 200 pounds, plot L 170 pounds, plots H and D about 120 pounds and plot F one-half that amount.

The effects of these applications appear in the ash analyses. Lot P contains most magnesia, lots H, F and D rank next in this regard, followed by Y.

Lots P, Y, F and D, which contained comparatively large percentage amounts of magnesia in the ash, have been among the best tobaccos, as regards quality, in the previous years.

These statements regarding the long wrappers are substantially correct, also, for the short wrappers.

It is noteworthy that the short wrappers of lot P, which in previous years have been of better quality than any other of the lots here discussed, contained more magnesia than lime in the ash.

3. The percentage amounts of sulphuric acid in the ash of lots L and M, from the plots dressed with sulphates of potash, are very much larger than any others, as was to be expected.

4. Lot AA, from the plot dressed with stable manure, contains a very high percentage of chlorine, 11.26, five times as much as any other lot in the series. Of the other lots, L, BB, Y and H contain over one per cent.

Double sulphate of potash and magnesia (L), tobacco stems (BB), and wood ashes (Y), all contain small amounts of chlorine, which, in addition to what chlorine is always in the soil and the rain, explains the percentages found, none of which are of special significance as regards their effect on the quality of the tobacco, except that in AA.

The observations here made are summarized as follows:—

1. The analyses represent the cumulative effects on the composition of the tobacco leaf of fertilizers applied for four and five years in succession.

2. The short wrappers have a somewhat larger percentage of ash, ether-extract and nitrogen-free extract than the long wrappers and correspondingly less fiber, nicotine, nitric acid and protein.

Of ash ingredients the short wrappers contain a somewhat larger percentage of silica, soda, lime, magnesia and oxide of iron, and a correspondingly smaller percentage of potash, phosphoric acid, sulphuric acid and chlorine.

3. There are no differences in the percentages of ether-extract, fiber and nitrogen-free extract traceable to the different fertilizers used.

Where fertilizer-nitrogen was applied in large excess of the probable crop requirements, a much larger percentage of nitrates was found in the leaf, amounting in one case to 3.78 per cent. of nitric acid (N_2O_5), than where smaller quantities of fertilizer-nitrogen were applied.

The percentages of protein and of nicotine were also above the average in tobacco to which the larger quantities of fertilizer-nitrogen had been applied.

4. The fertilizers used have had striking effects on the composition of the ash.

a. The largest percentage of potash was in tobacco to which most fertilizer-potash had been applied.

The percentage of potash is least in the ash of tobacco from the plots dressed with potash in form of sulphate. The percentage of potash in the ash of the tobacco from those plots is also less than it is in the ash of tobacco from plots which were dressed with the same, or even half the same quantity of fertilizer-potash in form of carbonate.

b. The tobacco dressed with high-grade sulphate of potash and the ash of which contained a smaller per cent. of potash than any other lot, contains on the other hand the highest per cent. of lime, and the tobacco dressed with the double sulphate of potash and magnesia also contains a relatively high per cent. of lime.

c. In general the tobaccos which have most lime have least magnesia, and vice versa. Comparatively large percentages of magnesia are found in the lots of tobacco which were raised on plots dressed with fertilizers containing much magnesia. In the short wrappers of a single plot, P, the percentage of magnesia was larger than that of lime.

The quality of the leaf has not been damaged in previous years by these large quantities of magnesia. Lots P, Y, F and D, which have large percentage amounts of magnesia, have heretofore been among the best tobaccos as regards quality of leaf.

d. The percentage of sulphuric acid in the leaf is very much larger when sulphates are used in the fertilizer.

It is believed that these large amounts of sulphuric acid impair the burning quality of the leaf, and in this experiment the "burn" of tobacco from the plot which was dressed with high-grade sulphate, has been very unsatisfactory.

e. The ash of tobacco from the plot dressed with stable manure contains five times as much chlorine as the ash from any other lot in the series.

AMOUNT OF NITROGEN, PHOSPHORIC ACID AND POTASH IN PEAS AND BEANS.

Samples of Peas of a wrinkled variety and of field Beans were sent to the Station by E. E. Burwell, New Haven, with a statement of the yield per acre, and an inquiry as to how much plant food each crop took from an acre in the seed alone.

The analyses were as follows:

	Peas. **5237**	*Beans.* **5235**
Nitrogen	4.27 per cent.	3.75 per cent.
Phosphoric acid	1.07 "	.90 "
Potash	1.13 "	1.47 "
Yield per acre	20 bushels.	25 bushels.
Equivalent to	1,120 pounds.	1,500 pounds.
Containing per acre—Nitrogen	47.8 pounds.	56.2 pounds.
Phosphoric acid	13.1 "	13.5 "
Potash	12.7 "	22.0 "

The crop of beans took from an acre about the same amount of phosphoric acid as the peas, but 9 pounds more each of nitrogen and of potash.

OBSERVATIONS ON THE GROWTH OF MAIZE CONTINUOUSLY ON THE SAME LAND FOR NINE YEARS.*

The plan of this experiment and the results obtained in previous years are given in detail in the Nineteenth Report of this Station, for 1895, pp. 216–225.

The results of the experiment in 1896 are here placed on record without discussion, which is reserved.

Gross Yield of the Plots in 1896.

Table I presents the gross weight of the kernels, cobs and stover harvested on each plot. Inasmuch as the kernels were air-dried on the cob, the weight of the latter in the field-cured condition could not be taken. Hence the weight of the kernels given in the table is slightly too high and that of the cobs slightly too low. But the error is small.

Table I.—Gross Yield of the Plots in Pounds per Acre. 1896.

	Plot A. Cow Manure.	Plot B. Hog Manure.	Plot C. Chemicals.	Plot D. No Fertilizer.
Kernels	5478.5	5975.5	4210.0	672.0
Cobs	664.0	737.0	530.0	78.0
Stover	11,557.5	10,957.5	6750.0	3900.0
Total	17,700.0	17,670.0	11,490.0	4650.0

Since these crops contain a large and variable quantity of water, a strict comparison of the yields can only be made on the dry matter.

This appears in Table II.

Table II.—Dry Matter of the Crops, Pounds per Acre. 1896.

	In Kernels.	In Cobs.	In Stover.	Total.
Plot A, cow manure	3338.2	593.0	6484.6	10,415.8
Plot B, hog manure	3652.3	658.1	5260.3	9570.7
Plot C, fertilizer-chemicals	2372.4	473.3	3516.6	6362.3
Plot D, no fertilizer	342.1	69.7	1670.9	2082.7

The percentage of water-free kernels, cobs and stover on the several plots, appears in the following table :

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* The analyses given in this paper have been made by Messrs. Winton, Ogden and Mitchell, chemists of this Station. This paper has been prepared for publication by the Vice-Director.

TABLE IIA.—PERCENTAGE OF WATER-FREE KERNELS, COBS AND STOVER, IN THE CROPS. AVERAGE OF SEVEN YEARS.

	Plot A.	Plot B.	Plot C.	Plot D.
Kernels	38.1	41.3	41.4	29.5
Cobs	6.7	7.4	8.2	5.5
Stover	55.2	51.3	50.4	65.0
	100.00	100.00	100.0	100.0

The relative yields of dry matter from these plots for the last seven years are given in Table III, the yield of plot A being marked in each case as 100.

TABLE III.—RELATIVE YIELD OF DRY MATTER FROM PLOTS A, B, C, D FOR SEVEN YEARS.

	Plot A.	B.	C.	D.
1890	100	104.7	89.5	73.5
1891	100	92.9	82.0	65.9
1892	100	114.6	98.3	48.9
1893	100	95.1	73.2	43.1
1894	100	95.6	96.9	66.9
1895	100	108.2	72.6	38.4
1896	100	91.9	61.1	20.0
Average	100	100.4	81.8	51.0

If the yield from each plot in 1890 is called 100, the comparative yields for the following years will be as represented in Table IIIA.

TABLE IIIA.—RELATIVE YIELD OF DRY MATTER IN THE SEVEN YEARS, 1890 TO 1896.

	Plot A.	Plot B.	Plot C.	Plot D.
1890	100	100	100	100
1891	96	81	83	81
1892	79	87	88	53
1893	58	53	48	34
1894	44	41	48	41
1895	82	85	67	43
1896	116	101	79	31

YIELD OF EACH FOOD INGREDIENT.

In Table IV are given the quantities, in pounds per acre, of each food ingredient harvested from the four plots in 1896.

The cobs were not analyzed, but as their amount is relatively very small, the average composition of cobs as determined in other analyses is used for the calculation.

TABLE IV.—YIELD OF FOOD INGREDIENTS IN POUNDS PER ACRE. 1896.

	PLOT A.				PLOT B.				PLOT C.				PLOT D.			
	Kernels.	Cob.	Stover.	Total.	Kernels.	Cob.	Stover.	Total.	Kernels.	Cob.	Stover.	Total.	Kernels.	Cob.	Stover.	Total.
Water	2138.8	71.0	5072.6	7282.4	2324.5	78.9	5696.8	8100.2	1838.1	56.7	3233.3	5128.1	329.9	8.3	2229.3	2567.5
Ash	31.2	9.3	404.5	445.0	37.0	10.3	303.5	350.8	12.2	7.4	188.3	207.9	2.0	1.1	84.6	87.7
Albuminoids	347.3	15.9	399.9	763.1	411.0	17.7	356.1	784.8	244.6	12.7	247.7	505.0	31.0	1.9	99.8	132.7
Fiber	45.5	199.9	2260.6	2506.0	55.0	221.8	1775.1	2051.9	34.1	159.5	1184.0	1377.6	4.9	23.5	496.9	525.3
Nitrogen-free extract	2740.4	364.6	3341.3	6446.3	2955.0	404.6	2765.7	6125.3	1961.9	291.0	1854.2	4107.1	287.5	42.8	966.4	1296.7
Fat	175.3	3.3	78.6	257.2	193.0	3.7	60.3	257.0	119.1	2.7	42.5	164.3	16.7	.4	23.0	40.1
	5478.5	664.0	11,557.5	17,700.0	5975.5	737.0	10,957.5	17,670.0	4210.0	530.0	6750.0	11,490.0	672.0	78.0	3900.0	4650.0

Table V shows the composition of the crops on the four plots, A, B, C and D, for the year 1896.

Table VI exhibits the striking differences in the percentage composition of the crops on the four plots calculated from the average of six years.

The crops, both of kernels and stalks, on A and B, which have been very heavily dressed each year, the one with cow manure, the other with hog manure, are practically identical as regards chemical composition.

The kernels of the crop on C, which receives each year a liberal dressing of fertilizer chemicals, 1500 pounds to the acre, contains in the kernels somewhat less ash or mineral matter and fat, and half a per cent. less of proteids, etc., than the crops on A and B, with correspondingly more nitrogen-free extract. Similar differences are found in the composition of the stalks.

The kernels in the crop on D, to which no fertilizer or manure has been applied since 1889, have 2.0 per cent. less proteids than that of plots A and B, somewhat less ash and fat, but more fiber and nitrogen-free extract.

TABLE V.—COMPOSITION, PER CENT., OF FIELD-CURED MAIZE, KERNELS AND STOVER FROM PLOTS A, B, C, D. 1896.

	Analyses of Field-cured Maize.						Calculated Water-free.				
	Water.	Ash.	Albuminoids.	Fiber.	Nitrogen-free Extract.	Fat.	Ash.	Albuminoids.	Fiber.	Nitrogen-free Extract.	Fat.
KERNELS.											
Plot A	39.04	.57	6.34	.83	50.02	3.20	.93	10.38	1.35	82.07	5.27
Plot B	38.90	.62	6.88	.92	49.45	3.23	1.04	11.26	1.50	80.91	5.29
Plot C	43.66	.29	5.81	.81	46.60	2.83	.52	10.32	1.44	82.69	5.03
Plot D	49.09	.30	4.61	.73	42.79	2.48	.59	9.05	1.44	84.05	4.87
STOVER.											
Plot A	43.89	3.50	3.46	19.56	28.91	.68	6.25	6.16	34.87	51.51	1.21
Plot B	51.99	2.77	3.25	16.20	25.24	.55	5.78	6.76	33.75	52.57	1.14
Plot C	47.90	2.79	3.67	17.54	27.47	.63	5.36	7.04	33.67	52.72	1.21
Plot D	57.16	2.17	2.56	12.74	24.78	.59	5.07	5.97	29.74	57.83	1.39

TABLE VI.—AVERAGE COMPOSITION OF THE DRY MATTER OF KERNELS AND STOVER OF CROPS OF 1890, 1891, 1892, 1893, 1894, 1895 AND 1896.

	Ash.	Albuminoids.	Fiber.	Nitrogen-free Extract.	Fat.
		KERNELS.			
Plot A	1.29	11.34	1.68	80.44	5.25
" B	1.42	11.56	1.62	80.13	5.27
" C	1.17	10.97	1.76	81.02	5.08
" D	1.17	9.33	1.82	82.83	4.85
		STOVER.			
Plot A	6.54	6.65	33.40	52.01	1.40
" B	6.66	6.65	33.68	51.60	1.41
" C	5.80	6.41	34.13	52.30	1.36
" D	5.19	5.43	32.96	54.99	1.43

To complete the data regarding this experiment two other tables are presented.

Table VII gives the quantities of nitrogen, phosphoric acid and potash which were added in the manure or fertilizers and remained in the crops of 1896.

It also gives the amounts of those fertilizing materials which have been added to the soil capital (+) or withdrawn (—) in the eight years during which accurate account has been kept.

Table VIII gives the record of the crops on the four plots for the whole period covered by the experiment and also the percentage composition of the several crops. The "bushels of shelled corn" given in this table have been calculated by adding 20 per cent. to the weight of the water-free kernels and dividing the sum by 50.

TABLE VII.—ENRICHMENT OR IMPOVERISHMENT OF SOIL BY NINE YEARS' MANURING AND CROPPING WITH INDIAN CORN. POUNDS PER ACRE.

	Cow Manure. Plot A.			Hog Manure Plot B.			Fertilizer Chemicals. Plot C.			No Fertilizer. Plot D.		
	Nitrogen.	Phos. acid.	Potash.	Nitrogen.	Phos. acid.	Potash.	Nitrogen.	Phos. acid.	Potash.	Nitrogen.	Phos. acid.	Potash.
After seven years' cropping	+1117.9	+788.1	+799.1	+1879.8	+3446.0	+63.9	+520.2	+971.6	+177.4	−316 6	+53.8	−66.0
Applied in 1896	286.3	136.4	204.5	419.9	586.5	72.4	172.0	162.0	69.0	00.0	00.00	00.0
Taken off in Crop of 1896	122.1	31.7	147.8	125.6	45.5	143.1	80.8	22.2	75.6	21.2	7.4	6.6
Excess (+) or Deficiency (—) after nine years' cropping	+1282.1	+892.8	+155.8	+2174.1	+3987.0	−6 8	+611.4	+1111.4	+170.8	−337.8	+46.4	−72.6

TABLE VIII.—YIELD OF DRY MATTER AND "SHELLED CORN" PER ACRE FOR NINE YEARS AND COMPOSITION OF DRY MATTER.

	Year.	Distance of Planting.	Pounds of Dry Matter per Acre.	Bushels of Shelled Corn.	Percentage Composition of Dry Matter: Ash.	Proteids, etc.	Fiber.	Nitrogen-free Extract.	Fat.
Fertilized alike with chemicals	1888	Stalks 12 inches apart.	7350	75	3.3	7.8	19.4	66.1	3.4
	1888	" 6 " "	7980						
	1889	" 12 " "	6144	60	3.5	6.1	21.7	69.7	3.0
	1889	" 6 " "	6353						
Cow Manure	1890A	" 10 " "	9014	91	4.0	7.9	19.8	65.7	2.6
Hog Manure	1890B	" 10 " "	9436	97	4.2	8.0	19.6	65.5	2.7
Fertilizer Chemicals	1890C	" 10 " "	8070	87	3.9	8.0	21.2	64.4	2.5
No Manure or Fertilizer	1890D	" 10 " "	6626	51	3.8	6.2	20.7	66.7	2.6
Cow Manure	1891A	" 12 " "	8176	103	3.2	7.5	15.5	70.2	3.6
Hog Manure	1891B	" 12 " "	7599	88	3.3	7.6	16.2	69.3	3.6
Fertilizer Chemicals	1891C	" 12 " "	6708	70	3.2	6.4	18.5	68.8	3.1
No Manure or Fertilizer	1891D	" 12 " "	5391	60	3.1	6.0	17.4	70.2	3.3
Cow Manure	1892A	" 12 " "	7181	72	4.0	8.2	19.6	65.1	3.1
Hog Manure	1892B	" 12 " "	8233	84	4.0	8.8	19.3	64.8	3.1
Fertilizer Chemicals	1892C	" 12 " "	7062	86	3.2	8.3	17.5	67.8	3.2
No Manure or Fertilizer	1892D	" 12 " "	3509	38	3.3	7.7	18.8	67.2	3.0
Cow Manure	1893A	" 12 " "	5277	53	4.3	8.8	20.8	63.3	2.8
Hog Manure	189 B	" 12 " "	5020	52	3.8	8.4	21.1	63.9	2.8
Fertilizer Chemicals	1893C	" 12 " "	3858	37	3.8	9.0	21.6	63.0	2.6
No Manure or Fertilizer	1893D	" 12 " "	2277	18	4.6	8.2	22.5	62.4	2.3
Cow Manure	1894A	" 12 " "	4021	42	4.3	9,0	18.8	64.5	3.4
Hog Manure	1894B	" 12 " "	3845	40	4.2	9.2	18.1	65.2	3.3
Fertilizer Chemicals	1894C	" 12 " "	3898	42	4.3	8.7	18.2	65.5	3.3
No Manure or Fertilizer	1894D	" 12 " "	2691	27	3.6	7.2	20.0	66.2	3.0
Cow Manure	1895A	" 12 " "	7408	75	3.8	8.7	20.0	64.6	2.9
Hog Manure	1895B	" 12 " "	8013	80	4.4	8.7	20.7	63.2	3.0
Fertilizer Chemicals	1895C	" 12 " "	5375	58	3.1	8.2	20.1	65.6	3.0
No Manure or Fertilizer	1895D	" 12 " "	2842	28	2.9	6.4	20.7	67.3	2.7
Cow Manure	1896A	" 12 " "	10416	80	4.3	7.3	24.7	61.2	2.5
Hog Manure	1896B	" 12 " "	9571	88	3.7	8.2	21.4	64.0	2.7
Fertilizer Chemicals	1896C	" 12 " "	6362	57	3.3	7.9	21.6	64.6	2,6
No Manure or Fertilizer	1896D	" 12 " "	2083	8	4.2	6.4	25.2	62.3	1.9

THE PROTEIDS OF LUPIN SEEDS.

By Thomas B. Osborne and George F. Campbell.

The lupin is a leguminous plant little known in this country except as a garden ornament. The yellow lupin (*Lupinus luteus*) and the blue lupin (*Lupinus angustifolius*), both native to Mediterranean regions, have long been cultivated in Europe because of their ability to grow luxuriantly on sandy or gravelly soils, and by their help large areas of poor, "worn out" land have been reclaimed and made agriculturally profitable, as these plants furnish abundant fodder and by the decay of their deeply penetrating roots, and especially when plowed under green, they rapidly impregnate the soil with humus and render it productive for other crops.

Ritthausen (Jour. f. Prakt. Chem., **103**, 78; the same, New Series, **24**, 222, and **26**, 422, and Die Eiweisskörper, etc., Bonn, 1872), first studied and described under the name *conglutin* the characteristic proteid of the lupin seed. He found that the yellow and blue lupin both yielded conglutin scarcely distinguishable in properties and only differing in composition as respects sulphur, of which his preparations from the yellow lupin contained 1 per cent. and those from the blue lupin but 0.5 per cent. Ritthausen also analyzed preparations which, from their composition, he concluded to be legumin. He stated that both legumin and conglutin are extracted from lupin seeds by salt solutions as well as by dilute alkali, and that the two proteids can be separated from each other by dissolving in alkali, then precipitating with an acid and finally treating with salt solution. On neutralizing these alkali solutions conglutin retains while legumin loses its solubility in saline solutions.

By extracting with five per cent. sodium chloride brine Ritthausen obtained two preparations from yellow lupin having the composition given under **1** and **2**; by dissolving **2** in potash water and reprecipitating, **3** was prepared; the blue lupin by extracting with salt solution yielded **4**.

Conglutin, Ritthausen.

	Yellow Lupin.			Blue Lupin.
	1	2	3	4
Carbon	50.40	50.58	50.26	50.39
Hydrogen	7.00	7.06	6.89	6.94
Nitrogen	18.34	18.04	18.28	18.22
Sulphur } Oxygen }	24.26	24.32	1.01	0.49
			23.56	23.96
	100.00	100.00	100.00	100.00

The proteid rendered insoluble in salt solution by previous precipitation from an alkaline liquid, by acetic acid, he found to have the following composition, these figures being the average of five quite closely agreeing analyses :

LEGUMIN, RITTHAUSEN.

Carbon	51.36
Hydrogen	6.97
Nitrogen	17.50
Sulphur	0.59
Oxygen	23.58
	100.00

Palladin (Zeit. f. Biol., **31**, 191) has recently described the properties of "vitellin" contained in seeds of the yellow lupin. In many details the results of his work do not agree with ours, but as he admits that the "vitellin" which he examined was always somewhat impure, it is unnecessary to review his statements here.

YELLOW LUPIN.

We find that seeds of the yellow lupin contain a small quantity of proteid that is soluble in pure water, a large quantity soluble in salt solutions, a small amount soluble in potash-water, and a little nitrogenous matter, presumably proteid, which cannot be extracted by these solvents.

To determine the proportions of these proteids, very finely ground yellow lupin meal was first completely extracted with warm alcohol of .868 sp. gr. in order to remove as far as possible the amides and alkaloids which occur in considerable quantities in this seed. The air dry meal before exhaustion with alcohol contained 8.16 per cent. of nitrogen. Alcohol removed 11.0 per cent. of the meal and gave a residue containing 8.49 per cent. of nitrogen, showing that 0.60 per cent. of nitrogen calculated on the original meal had been removed. The original meal accordingly contained 7.56 per cent. of nitrogen in the form of compounds insoluble in alcohol. As the seed reacted strongly acid towards litmus it is possible that a considerable quantity of alkaloids was not removed by the alcohol, but it was not desirable to add any alkali in this extraction for fear of affecting the proteids.

One thousand grams of the alcohol-exhausted and thoroughly air-dried meal were treated with successive quantities of ten per cent.

sodium chloride solution until saturation of the filtered extract with ammonium sulphate showed that no more proteid was removed. The united extracts were filtered clear, saturated with ammonium sulphate, the precipitated proteids were dissolved in brine, the solution was filtered and dialyzed for several days. The abundant precipitate thus produced was filtered out, washed by decantation with water and with alcohol and dried over sulphuric acid. The substance thus obtained weighed 279.0 grams.

The solution filtered from this globulin was saturated with ammonium sulphate, the precipitate produced was dissolved in water, the solution filtered and dialyzed until no more globulin separated. By this second dialysis 15.2 grams of globulin were secured. The solution filtered from this second portion of globulin was concentrated by dialysing in alcohol and the proteid completely thrown down by adding absolute alcohol. The precipitate which resulted was then dehydrated with absolute alcohol and dried over sulphuric acid. Only 4.20 grams of substance were thus obtained, indicating the presence of very little proteid soluble in water.

The residue of meal was washed with water, which took up no proteid, and exhausted by successive applications of 2-10 per cent. potash water. The alkaline extracts were filtered clear and treated with dilute acetic acid. No precipitate resulted until a decided excess of acid had been added. The proteid thus separated was washed with water and with alcohol, dried over sulphuric acid and weighed 60.53 grams.

The meal residue was next washed with water and with alcohol, dehydrated with absolute alcohol and thoroughly air dried. It weighed 192.0 grams, showing the lupin seed to contain over 80 per cent. of substance soluble in salt solution and very dilute alkali, an amount not approached by any other seed which we have examined.

The nitrogen was determined in the various products and the results are summarized in the following table:

Amount of Proteid Extracted From Yellow Lupin by Various Solvents.

Extracted residue contained 1.51 per cent. N. or		2.90	grams.
Proteid extracted by alkali,	60.53 grams, contained 16 43 per cent. N. or	9.95	"
Proteid extracted by salt solution	279.0 grams, contained 17.86 per cent. N. or	49.83	"
	15.2 grams, contained 18.09 per cent. N. or	2.75	"
Proteid extracted by water,	4.2 grams, contained 16.55 per cent. N. or	0.69	"
Total proteid,	358.93 grams.		
Total nitrogen accounted for		66.12	"
1,000 grams of meal contained 8.49 per cent. N. or		84.90	"

We thus have 77.88 per cent. of the nitrogen accounted for.

We will next consider in order :

I. Proteids soluble in pure water.

II. Proteids insoluble in water, but soluble in sodium chloride solution.

III. Proteids insoluble in water and in salt solution, but soluble in dilute potash-water.

I. Proteids Soluble in Pure Water.

As just indicated, water-soluble proteids occur in yellow lupin seeds in very small amount. Much the largest quantity obtained in any of the numerous extractions made was that already described, which formed 0.42 per cent. of the alcohol-extracted meal or 0.37 per cent. of the original meal. On treating this substance with water, a very considerable part was found to be coagulated. Since proteoses are not supposed to be rendered insoluble by prolonged treatment with alcohol, this insoluble matter was probably coagulated albumin or globulin, or possibly a mixture of both. The aqueous solution filtered from this insoluble proteid yielded a very small flocculent coagulum at 59°. The solution filtered after heating to 65°, became turbid at 67°, and flocks in minute amount appeared at 69°, which steadily increased until at 85° a very considerable coagulum had formed.

In another extraction by means of water, prolonged dialysis caused the separation of a small quantity of globulin which, when dissolved in salt solution, yielded a flocculent coagulum at 59° and but traces above 65°.

The solution from which most of this globulin had been removed by dialysis, gave a slight coagulum at 59°, and after heating to 65° the filtrate became turbid at 66°, and at 84° again yielded a small flocculent coagulum.

It is probable, therefore, that the substance coagulating at 59° is a globulin soluble in extremely dilute salt solutions which it is impossible to separate completely by dialysis and that the proteid coagulating at the higher temperature is an albumin.

Owing to the exceedingly small quantity of these proteids nothing further was learned respecting them.

The solution from which the coagulated proteid had been removed by heating gave a strong rose-red reaction with the biuret test, but no precipitate in the cold with nitric acid even after adding salt.

The yellow lupin seed accordingly contains a very small amount of albumin and a small quantity of proteose.

Neumeister (Zeitschrift für Biologie n. f.—**12**, 461) states that he found peptone in lupin seeds in large amount.

In order to test the seeds of the yellow lupin for peptones, 1,000 grams of freshly ground meal were treated with three liters of distilled water, and after agitating therewith for an hour the extract was strained through fine bolting cloth and the residue pressed out in a powerful screw press. Two liters of extract rich in dissolved substances was obtained, which was immediately saturated with ammonium sulphate and filtered. Lest peptones might be formed during the operation of extraction, the process up to this point was carried forward as rapidly as possible so that not over three hours elapsed before the solution, saturated with ammonium sulphate, was filtered. In order to be sure that the solution had been thoroughly saturated, a quantity of crystals of this salt were suspended in it over night, but no more proteid separated. Neumeister has stated that saturating seed extracts while hot and when made alternately acid and alkaline in reaction, is unnecessary. We, however, heated the solution to boiling, added ammonium sulphate as long as it dissolved, concentrated somewhat and allowed to cool. Much ammonium sulphate separated, but no noticeable quantity of proteose. After filtering off the separated sulphate, the solution was heated to boiling and concentrated until sulphate began again to crystallize out. Ammonia was next added to distinct alkaline reaction, and after heating a short time the solution was again cooled, filtered from deposited sulphate and the filtrate concentrated until more sulphate separated. Acetic acid was added to acid reaction, the heating continued for a time, and the whole again cooled. After filtering out the separated crystals the solution measured 350 c. c. The solution was then nearly neutralized with ammonia, leaving its reaction slightly acid, and after adding an equal volume of water a freshly prepared solution of tannic acid was gradually added so long as a precipitate was produced in a small portion of the filtered liquid. A bulky reddish precipitate formed which, after standing 24 hours, was removed from the filter and treated with a slight excess of hot concentrated solution of baryta. After standing a short time the warm solution was filtered, and as it was very strongly alkaline from free ammonia, one-half was neutralized with sulphuric acid, thereby removing the excess of baryta. Neutral lead acetate was then added and the solution filtered. The most carefully applied biuret test did not show the least trace of peptone in this solution. The remainder was then evaporated nearly to dryness and about two cubic centimeters of syrup obtained which, if it had all been peptone, would hardly be considered a large amount. No peptone reaction whatever could be obtained with this syrup.

The other half of the solution was treated exactly as Neumeister directed—that is, neutral lead acetate was added without neutralizing the ammonia, and, after filtering, the biuret reaction was applied, but with no indication of peptone.

Since writing the above, S. Frankfurt (Landw. Ver.-Stat. **47**, 454) has stated that no peptone is present in seeds of the lupin, and attributes Neumeister's results to his long treatment of the seeds with water. In a letter to Frankfurt, Neumeister stated that after swelling the seeds in water they were rubbed up and digested with water for 24 hours, and that the vessels containing the extracting seeds were exposed to the direct action of sunlight in summer. It is thus evident that the peptone found by Neumeister was formed during the extraction and was not an original constituent of the seed.

II. *Proteids soluble in saline solutions.*

As just mentioned, a very small quantity of a globulin soluble in extremely dilute salt solutions, yielding a flocculent coagulum when its solution in ten per cent. sodium chloride is heated to 59°, was found in extracts of the yellow lupin seed. As but little of this proteid is present in this seed, no attempt was made to do more than note its presence. Owing to its ready solubility in very dilute salt solutions, this proteid dissolves when lupin meal is treated with water. Besides this little if any other globulin substance is extracted from lupin seeds by the dilute saline solution which results when the meal is treated with water. Large quantities of globulin are, however, obtained by extraction with stronger salt solutions.

One hundred grams of meal yielded directly with salt solution an extract which was filtered clear, saturated with ammonium sulphate, the precipitate produced filtered out, dissolved in brine and the solution filtered clear and dialyzed for eighteen hours. The globulin thus precipitated was filtered out, washed with water, alcohol and ether, dried over sulphuric acid and found to weigh 12 grams. The filtrate by further dialysis similarly yielded 4.7 grams of globulin. These preparations, **1** and **2**, were analyzed with the results given below. The residue, remaining after exhausting 100 grams of meal with water, on treating with salt solution gave an extract which, when filtered clear and dialyzed four days, yielded 20.36 grams of globulin, preparation **3**, having the composition given in the following table. A large quantity of the globulin was prepared by extracting one kilogram of finely ground lupin meal with six liters of brine, filtering the resulting solution, saturating with ammonium sulphate, filtering out the precipitate produced, dissolving this in dilute salt solution, again precipitating by saturating with ammonium sulphate, re-dissolving the precipitate, filtering the solution so obtained and dialyzing for forty hours. The very large precipitate which separated was washed thoroughly by decantation with water, dilute alcohol, absolute alcohol and ether and then dried over sulphuric acid. In this way 112 grams of preparation **4** were secured having the composition given in the subjoined table. The filtrate from **4**, after three days further dialysis, gave a second precipitate of globulin which was decidedly more viscid than **4.** This by the usual treatment yielded 30 grams of preparation **5** with the composition given below.

Another portion of meal weighing one kilogram was several times extracted with water and the residue treated with successive applications of 10 per cent. salt solution. The extract was filtered clear and dialyzed for forty hours. The globulin so precipitated was thoroughly washed with water by decantation, then with dilute alcohol and finally with absolute alcohol until no more color was removed, and finally with ether and then dried over sulphuric acid ; 120 grams of preparation **6** were thus obtained, giving on analysis the figures stated below. The solution from which **6** had separated was saturated with ammonium sulphate, the precipitate dissolved in brine and the solution returned to the dialyzer. After some days the small precipitate which had separated was filtered out, washed and dried in the usual manner and gave 5.0 grams of preparation **7** having the composition given below.

In order to avoid as far as possible any contamination of the proteid with nitrogenous or other substances soluble in alcohol, a quantity of very fine ground lupin meal was exhausted in a Squibbs percolator with a large quantity of strong alcohol, the process being continued until only a trace of solid matter remained after evaporating a considerable quantity of the alcoholic extract.

Two kilograms of this meal were then extracted as thoroughly as possible with brine, the solution filtered clear and saturated with ammonium sulphate. The proteids thus precipitated were dissolved in brine, the solution filtered perfectly clear and the globulin thrown down by dialyzing three days was filtered off, washed and dried in the manner already described. There was thus obtained 506 grams of globulin, preparation **8**.

The solution filtered from **8** by longer dialysis yielded 45 grams of preparation **9**. These preparations had the composition given below.

LUPIN GLOBULIN.

	1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**
Carbon	50.62	50.68	50.63	50.49	50.29	50.41	49.81	50.20	49.47
Hydrogen	6.94	6.95	7.00	6.77	6.89	6.85	6.79	6.75	6.77
Nitrogen	17.45	17.89	18.05	17.90	17.88	18.01	17.79	17.86	18.07
Sulphur	0.77	0.80	0.88	0.88	1.25	0.87	1.48	0.98	1.49
Oxygen	24.22	23.68	23.44	23.96	23.69	23.86	24.13	24.21	24.20
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Ash	0.51	0.27	0.74	0.26	0.30	0.99	0.83	0.38	0.23

These figures agree quite closely except those for **5**, **7** and **9** in which carbon is less and sulphur decidedly more than in the others. The fact that these three preparations separated on prolonged dialysis of the solutions which had yielded **4**, **6** and **8** indicates the presence of two globulins, of different composition.

It was therefore necessary to submit this substance to very thorough fractional precipitation in order to determine definitely its true composition. Accordingly one hundred grams of preparation **6** were dissolved in 800^{cc} of five per cent. salt solution, filtered from a very small quantity of insoluble matter and the perfectly clear solution was mixed with 800^{cc} of water and cooled to 0°. A very large proportion of the dissolved proteid separated as a solid, coherent mass on the bottom of the beaker from which the clear solution was completely decanted. This precipitate was marked A, the solution B. The precipitate A was dissolved in 100^{cc} of ten per cent. brine, yielding readily a perfectly clear solution. This was mixed with 100^{cc} of water at 20° but no precipitate resulted. Water was then added gradually until an abundant precipitate formed and the total volume equalled 500^{cc}. After settling, the clear solution was poured off from the precipitate and the latter washed thoroughly with water and alcohol and dried over sulphuric acid. In this way 46.0 grams of preparation **10** were obtained, having the following composition.

LUPIN GLOBULIN, **10**.

Carbon	50.49
Hydrogen	6.77
Nitrogen	17.89
Sulphur	0.66
Oxygen	24.19
	100.00
Ash	0.51

The solution decanted from **10** was mixed with 600^{cc} more water, which gave another precipitate that, after washing and drying, weighed 10.5 grams and had the composition given below.

LUPIN GLOBULIN, **11**.

Carbon	50.18
Hydrogen	6.94
Nitrogen	17.93
Sulphur	0.82
Oxygen	24.13
	100.00
Ash	0.77

The solution B decanted from the first precipitate A as described above was diluted with an equal volume of water, cooled to 0° and allowed to deposit the resulting precipitate. After washing and drying, preparation **12**, weighing 8.0 grams, was obtained, which gave the following results on analysis.

LUPIN GLOBULIN, **12.**

Carbon	50.08
Hydrogen	6.82
Nitrogen	18.26
Sulphur	1.30
Oxygen	23.54
	100.00
Ash	0.74

The solution from which **12** separated was saturated with ammonium sulphate, the proteid thereby precipitated was dissolved in water and the clear solution dialyzed. A small precipitate resulted which when washed and dried weighed 1.40 grams and had the following composition.

LUPIN GLOBULIN, **13.**

Carbon	49.54
Hydrogen	6.91
Nitrogen	18.24
Sulphur Oxygen	25.31
	100.00
Ash	0.49

These fractional precipitations show a regular decrease in their content of carbon and an increase in both nitrogen and sulphur, that of the latter being especially marked. It is to be noted that the total weight of the foregoing fractions formed only 65.9 per cent. of the proteid taken, suggesting that the globulin was undergoing a change while in solution; but as no especial care was exercised to obtain all the proteid from the solutions, this process was repeated, not only with a view to settling this point, but to obtain larger quantities of the extreme fractions for further examination.

One hundred grams of preparation **8** were dissolved in 800^{cc} of five per cent. brine and the solution, after filtering perfectly clear, was mixed with 800^{cc} of water and cooled to 10°. The abundant precipitate which resulted was allowed to settle, and the solution decanted. The precipitate was marked C, the solution D. Precipitate C was next dissolved in 100^{cc} of ten per cent. brine and

300^{cc} of water at 20° added to the resulting solution. After standing some time the clear solution was decanted from the large deposit of proteid and the latter washed and dried. Thus were obtained 50.0 grams of preparation **14**, which analysis showed to have the following composition.

LUPIN GLOBULIN, **14**.

Carbon	50.71
Hydrogen	7.00
Nitrogen	17.86
Sulphur	0.67
Oxygen	23.76
	100.00
Ash	0.39

The filtrate from **14** was mixed with 400^{cc} of the first washings of **14** and cooled to 7°–8°. On standing, a part of the proteid deposited and the clear solution was then decanted. The precipitate, preparation **15**, after washing and drying weighed 8.46 grams, and according to analysis contained:

LUPIN GLOBULIN, **15**.

Carbon	50.14
Hydrogen	6.94
Nitrogen	17.83
Sulphur	0.86
Oxygen	24.23
	100.00
Ash	0.81

The solution from which **15** had separated was dialyzed but only a very small quantity of globulin could be obtained, preparation **16**, which weighed 0.7 gram and without correction for ash contained 18.22 per cent. of nitrogen. Solution D decanted from precipitate C as already described was cooled to 3°, that is 7° lower than before. This caused a further quantity of globulin to separate, which gave preparation **17**, weighing 21.14 grams.

LUPIN GLOBULIN, **17**.

Carbon	50.13
Hydrogen	6.88
Nitrogen	17.72
Sulphur	0.80
Oxygen	24.41
	100.00
Ash	0.59

The solution from which **17** separated was dialyzed free from chlorides and 13.7 grams of preparation **18** obtained having the following composition:

LUPIN GLOBULIN, **18**.

Carbon	50.04
Hydrogen	6.79
Nitrogen	18.43
Sulphur	1.48
Oxygen	23.26
	100.00
Ash	0.25

The filtrate from **18** contained but a very little proteid precipitable with ammonium sulphate. The total weight of these fractions was 94.0 grams; the 6 grams unaccounted for may be fairly attributed to mechanical loss and therefore a change of proteid to non-proteid substances is improbable.

These fractions, like those of the preceding series, show a decrease in carbon and an increase in nitrogen and sulphur as we pass from the least to the most soluble.

Another series of separations was next made by fractional solution.

One hundred grams of preparation **8** were dissolved in 800^{cc} of five per cent. brine, diluted with 800^{cc} of water at 20° and the solution cooled to 5°. The clear solution was then decanted from the separated proteid and dialyzed till free from chlorine. The globulin thus separated after washing and drying weighed 24.03 grams and had the following composition:

LUPIN GLOBULIN, **19**.

Carbon	50.11
Hydrogen	6.84
Nitrogen	18.46
Sulphur	1.28
Oxygen	23.31
	100.00
Ash	0.17

The proteid deposited by cooling as just described was dissolved in 700^{cc} of five per cent. brine and cooled at 5°. The clear solution was decanted and dialyzed, yielding 18.60 grams of preparation **20**, which contained:

LUPIN GLOBULIN, **20.**

Carbon	50.27
Hydrogen	6.78
Nitrogen	18.43
Sulphur	1.15
Oxygen	23.37
	100.00
Ash	0.10

The substance precipitating on cooling as just described was dissolved in 600^{cc} of five per cent. salt solution, mixed with an equal volume of water and cooled to 2°. The clear solution was dialyzed and 5.6 grams of preparation **21** were obtained, which gave the following results on analysis:

LUPIN GLOBULIN, **21.**

Carbon	50.03
Hydrogen	6.86
Nitrogen	18.47
Sulphur	1.49
Oxygen	23.15
	100.00
Ash	0.22

The precipitate that separated on cooling the solution from which **21** was obtained, was dissolved in 500^{cc} of five per cent. brine, diluted with an equal volume of water and cooled to 7°. The solution was decanted from the precipitate and dialyzed. Thus was obtained 4.31 grams of preparation **22,** which contained:

LUPIN GLOBULIN, **22.**

Carbon	50.44
Hydrogen	6.92
Nitrogen	18.23
Sulphur	1.14
Oxygen	23.27
	100.00
Ash	0.11

The substance deposited by cooling, as last described, was dissolved in 300^{cc} of five per cent. salt solution, filtered clear and dialyzed till free from chlorides. The deposited globulin, after washing and drying, weighed 33.88 grams and contained:

LUPIN GLOBULIN, **23.**

Carbon	51.13
Hydrogen	6.86
Nitrogen	18.03
Sulphur	0.49
Oxygen	23.49
	100.00
Ash	0.52

Like the preceding, this series of fractional separations shows a decrease in carbon and an increase in nitrogen and sulphur with increased solubility. The total weight of the fractions obtained was 86.42 grams, the loss being no greater than was to be expected.

Thirty-five grams of preparation **10** and the same quantity of preparation **14**, representing the least soluble portions obtained in the two first series of fractions, were next dissolved in 600^{cc} of five per cent. brine, diluted with an equal volume of water and cooled to 6°. The solution was decanted from the precipitate which resulted, filtered clear and dialyzed. The globulin thus precipitated after washing and drying weighed 12.43 grams and contained:

LUPIN GLOBULIN, **24.**

Carbon	50.10
Hydrogen	6.94
Nitrogen	18.12
Sulphur	0.94
Oxygen	23.90
	100.00
Ash	0.23

The precipitate produced by cooling the solution, as just described, was dissolved in 500^{cc} of salt solution, diluted with 500^{cc} of water and cooled to 6°. The deposited proteid after the usual treatment weighed 7.80 grams and had the following composition:

LUPIN GLOBULIN, **25.**

Carbon	50.32
Hydrogen	6.90
Nitrogen	18.06
Sulphur	0.81
Oxygen	23.91
	100.00
Ash	0.27

The substance separated by cooling as just described was dissolved in 1000^{cc} of two and one-half per cent. sodium chloride solution and cooled to 7°. The clear fluid, decanted from the thus precipitated proteid, was dialyzed and yielded 5.51 grams of globulin, giving on analysis the following results:

LUPIN GLOBULIN, **26.**

Carbon	50.80
Hydrogen	6.91
Nitrogen	18.01
Sulphur	0.64
Oxygen	23.64
	100.00
Ash	0.23

The proteid separated by cooling the solution from which **26** had been obtained was dissolved in 500^{cc} of five per cent. salt solution, diluted with an equal volume of water and cooled to 14°. The clear solution was decanted and dialyzed and gave 4.9 grams of preparation **27**, which analysis showed to have the composition here given:

LUPIN GLOBULIN, **27.**

Carbon	50.90
Hydrogen	6.85
Nitrogen	17.88
Sulphur	0.55
Oxygen	23.82
	100.00
Ash	0.27

The substance deposited at 14° as noted above was dissolved in 500^{cc} of five per cent brine, diluted to 1000^{cc} and allowed to settle at the temperature of the room (about 22°). The fluid was then decanted, dialyzed and further treated in the usual manner. There was thus obtained 5.45 grams of preparation **28**, which contained:

LUPIN GLOBULIN, **28.**

Carbon	50.93
Hydrogen	6.94
Nitrogen	17.83
Sulphur	0.48
Oxygen	23.82
	100.00
Ash	0.23

The substance separated by diluting the solution from which 28 resulted was washed with water and alcohol, dried and found to weigh 20.6 grams. Its composition was :

LUPIN GLOBULIN, 29.

Carbon	50.80
Hydrogen	6.83
Nitrogen	17.88
Sulphur	0.46
Oxygen	24.03
	100.00
Ash	0.70

This like the other series of fractional separations shows an increase in carbon and decrease in sulphur and nitrogen content accompanying a decrease in solubility. If the final fractions, which have been most thoroughly purified, are arranged as in the table below, it will be seen that a nearly constant composition has been reached, so that the average of these analyses may be taken as closely representing the composition of the least soluble and most abundant globulin of the yellow lupin.

YELLOW LUPIN GLOBULIN, CONGLUTIN.

	23	26	27	28	29	Average.
Carbon	51.13	50.80	50.90	50.93	50.80	50.91
Hydrogen	6.86	6.91	6.85	6.94	6.83	6.88
Nitrogen	18.03	18.01	17.88	17.83	17.88	17.93
Sulphur	0.49	0.64	0.55	0.48	0.46	0.52
Oxygen	23.49	23.64	23.82	23.82	24.03	23.76
	100.00	100.00	100.00	100.00	100.00	100.00

This is the globulin discovered by Ritthausen, and described by him under the name conglutin.

A careful examination of preparation 29 showed this globulin to have the following reactions :

In very dilute acids and alkalies it is completely soluble, yielding perfectly clear solutions of a light yellow color.

Dissolved in very dilute acetic acid, the proteid is precipitated by neutralizing the solution with sodium carbonate. On adding sodium chloride brine to the solution containing the precipitate in suspension, the latter is completely dissolved.

In ten per cent. sodium chloride brine it dissolves readily, giving a very slightly turbid solution of a pale yellow color, which turns litmus paper red, lackmoid paper blue, and has no effect on tropæoline when evaporated to dryness with it.

A solution containing ten per cent. of the globulin dissolved in ten per cent. sodium chloride brine behaved as follows :

Dilution with twice its volume of water produced a considerable precipitate.

Addition of one drop of acetic acid, sp. gr. 1.035, or one drop of hydrochloric acid (1 part concentrated acid and 3 parts of water) to 5^{cc} of this solution gave a heavy precipitate.

Addition of mercuric chloride* dissolved in ten per cent. brine gave no precipitate.

Tannin as well as picric acid gave a heavy precipitate.

Diluted with an equal volume of ten per cent. brine, the solution, containing five per cent. of globulin, reacted as follows :

No precipitate was produced by saturation with sodium chloride, magnesium sulphate or sodium sulphate at 20°, but at 34° saturation with the last-named salt precipitated all but a minute trace of the globulin.

When the solution in ten per cent. sodium chloride brine, containing five per cent. of proteid, was heated gradually in a water bath, no change appeared even after heating some time at 100°. After more prolonged heating a thick transparent skin formed on the surface. On cooling and standing several hours, the solution set to a solid jelly and became somewhat turbid.

Addition of nitric acid to the solution in brine gave a precipitate not soluble in an excess of this acid. On heating, the usual xanthoproteic reaction occurred, which was preceded by the development of a slight pink color quickly changing to yellow, doubtless due to a trace of coloring matter still adhering to the proteid. When the globulin in the dry state was treated with very dilute nitric acid a clear solution resulted which gave a heavy precipitate on adding an excess of acid, that behaved on heating as just described. The usual proteid reactions were obtained with Millon's, Adamkiewics' and the biuret tests.

In order to determine the composition of the more soluble fractions, the greater parts of **18**, **19** and **20** were united, giving forty grams of substance which was dissolved in 400^{cc} of five per cent. brine, the solution was filtered perfectly clear, the filter washed with 100^{cc} of the same salt solution, and the filtrate and washings were mixed with an equal volume of water. After cooling to 8°, and standing some time a part of the globulin separated. From this the solution was decanted. The proteid was deposited as a viscid transparent fluid, which became opaque on treating with distilled water and finally solid. It was dehydrated with absolute alcohol and dried over sulphuric acid giving 19.2 grams of preparation **30**, having the following composition :—

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* Palladin (Zeitschrift f. Biol. **31**, 195) states that 10 per cent. sodium chloride solutions are not precipitated by mercuric chloride, but that diluted solutions give precipitates soluble in salt solution. The precipitate which he thus obtained was of course caused by the water added with the mercuric chloride. If he had dissolved the mercury salt in brine, no precipitate would have resulted.

LUPIN GLOBULIN, **30**.

Carbon	49.64
Hydrogen	6.87
Nitrogen	18.21
Sulphur	1.20
Oxygen	24.08
	100.00
Ash	0.32

The solution decanted from preparation **30** was mixed with 500^{cc} of water and cooled to 7°. The resulting precipitate, when treated in the same way as **30** had been, gave 9.25 grams of preparation **31**, containing :—

LUPIN GLOBULIN, **31**.

Carbon	49.62
Hydrogen	6.72
Nitrogen	18.22
Sulphur	1.36
Oxygen	24.08
	100.00
Ash	0.43

The solution from which **31** had separated was dialyzed free from chlorides, and yielded 7.4 grams of preparation **32** :

LUPIN GLOBULIN, **32**.

Carbon	49.59
Hydrogen	6.75
Nitrogen	18.43
Sulphur	1.62
Oxygen	23.61
	100.00
Ash	0.17

These three fractions have very nearly the same composition, which is in close agreement with that of the other most soluble fractions already described, as may be seen from the following table:

LUPIN GLOBULIN.

	13.	**18.**	**9.**	**30.**	**31.**	**32.**	Average.
Carbon	49.54	49.63	49.47	49.64	49.62	49.59	49.58
Hydrogen	6.91	6.78	6.77	6.87	6.72	6.73	6.80
Nitrogen	18.24	18.43	18.08	18.21	18.22	18.43	18.27
Sulphur	25.31	1.48	1.49	1.20	1.36	1.56	1.42
Oxygen		23.68	24.20	24.08	24.08	23.67	23.93
	100.00	100.00	100.00	100.00	100.00	100.00	100.00

A series of tests of preparation **30**, conducted at the same time and under identical conditions with those described for preparation **29**, revealed the following differences. In ten per cent. sodium chloride brine, **30** dissolved to a perfectly clear solution more colored than that yielded by **29**.

Preparation **30**, dissolved in brine to a solution containing ten per cent. both of salt and proteid, was not even rendered turbid by dilution with two volumes of water, but with three volumes a slight precipitate was given. A similar solution of **29**, with two volumes of water, gave a considerable precipitate, and with three volumes a very heavy precipitate.

5^{cc} of the ten per cent. solution of **30** required eight drops of acetic acid, sp. gr. 1.035, to produce a slight precipitate, while one drop under the same conditions gave a heavy precipitate in a similar solution of **29**.

With one drop of hydrochloric acid (one part concentrated HCl and three parts H_2O) only a turbidity was produced in the case of **30**, while under like conditions **29** yielded a heavy precipitate.

Saturation with sodium sulphate of the solution containing five per cent. of **30** gave only a partial precipitation, **29** being wholly precipitated under like conditions.

When this five per cent. solution in ten per cent. brine was heated in a water bath a turbidity formed at 94°, increasing as the temperature was raised, becoming dense at 99° and after long heating a gelatinous flocculent precipitate separated which was unchanged on cooling and standing; when heated with nitric acid the pink color which preceded the yellow of the xanthoproteic reaction was more pronounced than that yielded by **29**.

In all other respects no difference could be detected between the reactions of **30** and **29.** The most noticeable property in which both differ from nearly all other vegetable globulins is that neither yields insoluble products (the so-called "albuminates") when separated from solution. The only evidence of such a tendency noticed in the very large number of preparations made, was in some cases shown by the presence of a slight turbidity when precipitates were re-dissolved.

Both give solutions which react strongly acid with litmus. Titrated with standard ammonia, two grams of each of these globulins required the addition of ten milligrams of ammonia to cause an alkaline reaction with litmus.

Although the analyses of the final fractions of the more soluble globulin agree closely and their properties and reactions are quite alike, it seems to us doubtful if they represent a definite chemical species. The close physical and chemical resemblance between the least soluble substance and the most soluble, suggests that they are closely related. The distinct difference in some properties observed between the extreme products of fractional precipitation make it probable that a combination of some sort has taken place between the conglutin and other constituents of the seed.

As the lupin seed is unusually rich in soluble constituents, it would not be surprising if the proteid on precipitation carried down with it more or less of these substances which could be with difficulty separated afterwards. From the globulin of the blue lupin by fractional precipitation readily soluble products were obtained which however were wholly different in composition and quite distinct in reaction from the more soluble fractions of the yellow lupin globulin. The soluble fractions are possibly conglutin combined either chemically or mechanically with other constituents of the seed, which in the two varieties of lupin are apparently present in different proportions.

C. *Proteid insoluble in water and saline solution but soluble in dilute alkalies.*

As previously described on page 344, after exhausting one kilo gram of yellow lupin meal with ten per cent. sodium chloride solution and washing the residue with water, by continued extraction with two-tenths per cent. potash water a solution was obtained which after filtering clear and adding acetic acid to distinct acid reaction yielded a precipitate which after washing with water and alcohol and drying over sulphuric acid weighed 60.53 grams. This was re-dissolved in two-tenths per cent. potash water, the solution again filtered clear and carbonic acid passed through it. The proteid partly separated, but could not be filtered, so a little ammonium chloride was added to convert the potassium carbonate into chloride, but even after passing carbonic acid through the solution for some time and allowing it to stand over night in an ice box, only a partial separation resulted. Acetic acid was then added in slight excess and the precipitate filtered off and washed thoroughly with water and with alcohol. Dried at 110° this preparation, **33**, gave the following results on analysis:

LUPIN PROTEID, **33.**

Carbon	51.40
Hydrogen	6.79
Nitrogen	16.43
Sulphur	1.03
Oxygen	24.35
	100.00
Ash	1.57

BLUE LUPIN.

One kilogram of fine ground meal of the seeds of the blue lupin was extracted with a large quantity of distilled water applied in successive portions and the residual meal thrown on fine bolting cloth after each application. The extract thus obtained was allowed to stand over night. The partly clarified liquid was syphoned off, saturated with ammonium sulphate, the precipitate dissolved in brine and the solution filtered clear and dialyzed for 48 hours. A precipitate resulted which was filtered off, washed with water and with alcohol and dried over sulphuric acid, giving preparation **34**, weighing 8.46 grams. The filtrate was dialyzed for ten days longer in a stream of water, but no more proteid separated. The solution was then concentrated by dialysis in alcohol and absolute alcohol added until all the proteid contained in it was precipitated. The substance thus obtained weighed when dry only 1.42 grams and was not examined further than to find that it was nearly all insoluble in water, having been coagulated by the prolonged treatment with alcohol. This insolubility of the greater part of this substance shows that very little proteose is present.

Like the yellow lupin, this seed contains but little proteid matter soluble in water, and that is mostly globulin dissolved by aid of the salts extracted from the seed.

The meal residue which had been exhausted with water was treated with ten per cent. sodium chloride solution and the extract, after filtering perfectly clear, was dialyzed for 40 hours. The globulin, which separated in a coherent mass on the bottom of the dialyzer, was washed thoroughly by decantation with water and with alcohol and dried over sulphuric acid. This gave 115.0 grams of preparation **35**.

Another preparation of this globulin was made by treating one kilogram of the meal directly with ten per cent. brine, filtering the extract perfectly clear and dialyzing for 40 hours. The globulin thus precipitated, after washing and drying, formed preparation **36** and weighed 112 grams. These three preparations were dried at 110° and analyzed with the following results.

	BLUE LUPIN GLOBULIN.			CONGLUTIN.
	34	**35**	**36**	Yellow lupin.
Carbon	50.58	50.82	50.85	50.91
Hydrogen	6.58	6.87	6.78	6.88
Nitrogen	17.82	18.04	18.04	17.93
Sulphur	0.72	0.40	0.50	0.52
Oxygen	24.30	23.87	23.83	23.76
	100.00	100.00	100.00	100.00
Ash	0.64	1.22	1.11	

The agreement between **35** and **36** and the purified conglutin of the yellow lupin is very close indeed, but in order to be sure that this was not accidental these two preparations were subjected to the following treatment.

One hundred grams of **35** were dissolved in 500^{cc} of five per cent. sodium chloride brine and 500^{cc} of water added to the solution. A large rapidly settling precipitate resulted which formed a semi-fluid mass on the bottom of the beaker, from which the very nearly clear solution A was poured after a short time. The precipitate B was dissolved in 280^{cc} of 6.5 per cent. brine and the resulting solution, which measured 380^{cc}, was diluted with an equal volume of water and cooled to 5°. The solution was then decanted from the precipitate, which was washed and dried as usual and found to weigh 39.2 grams, preparation **37**. The solution decanted from **37** was dialyzed until free from salt, whereby a precipitate resulted which when washed and dried weighed 4.2 grams and formed preparation **38**. The solution A, decanted from precipitate B as above described, was cooled to 5° and the solution C decanted from the precipitate D. This precipitate was again dissolved in 300^{cc} of five per cent. brine, 300^{cc} of water added and the whole cooled to 5°. The precipitate thus produced when dried weighed 19.5 grams, preparation **39**. The solution from which **39** had separated was dialyzed and yielded preparation **40**, weighing 5.4 grams.

The solution C decanted from precipitate D was dialyzed free from chlorides and thereby 13.0 grams of preparation **41** was separated. These preparations were dried at 110° and analyzed with the following results. In the table they are arranged according to their solubility in dilute salt solutions.

	37	**39**	**38**	**40**	**41**	
Carbon	51.25	51.04	50.82	50.98	50.79	
Hydrogen	6.96	6.75	6.66	6.83	6.79	
Nitrogen	18.11	18.15	17.69	17.66	17.64	
Sulphur	0.32	0.24	0.49	0.38	0.39	
Oxygen	23.36	23.82	24.34	24.15	24.39	
	100.00	100.00	100.00	100.00	100.00	
Ash	0.95	0.71	0.61	0.52	0.75	
Amount	39.2	19.5	4.2	5.4	13.0	grams.

From these figures it would seem that preparation **35** contained some impurities, which accumulated in the three most soluble fractions in which the nitrogen is a little lower and the sulphur slightly higher than in the less soluble fractions. Preparation **36** was next fractionally precipitated in the following manner.

One hundred grams were dissolved in 700^{cc} of five per cent. sodium chloride brine, filtered perfectly clear and the solution diluted with an equal volume of distilled water. The proteid separated as a viscid liquid from which the solution E was decanted. The precipitate, F, was dissolved in 100^{cc} of five per cent. brine and the resulting solution, which measured 175^{cc}, was cooled in a freezing mixture to —4°, and then allowed to stand until it had warmed to 20°. The precipitate thus produced formed a perfectly transparent syrupy liquid which measured 61^{cc}. The solution from which this had separated was decanted and the fluid precipitate was washed by stirring up with water, whereby it was rendered opaque and pasty. On washing with fresh quantities of water the substance became denser and granular. It was finally washed with alcohol and dried over sulphuric acid, giving 25 grams of preparation **42.**

The washings of **42** were cooled to 0° and 0.4 gram preparation **43** obtained. The solution from which this separated contained very little proteid, which was not saved. The solution E, decanted from precipitate F, was cooled to 8°, and the solution G was decanted from the proteid H, thus separated.

This precipitate was treated with 77^{cc} of five per cent. sodium chloride brine giving a solution measuring 126^{cc}, which was cooled to $-10°$ and then allowed to stand until warmed to 20°, when 49^{cc} of a clear viscid liquid separated. This was washed with water in the same manner as **42** had been and then with alcohol, dried over sulphuric acid, and 18.5 grams of preparation **44** obtained. From the washings of **44** by cooling to 0° 2.62 grams of preparation **45** were separated. The solution G, decanted from precipitate H, was cooled in a freezing mixture until partly frozen, when it was allowed to melt and deposit the separated proteid. The latter, J, after decanting the solution I, was dissolved in 50^{cc} of five per cent. sodium chloride brine and the 75^{cc} of solution which resulted was cooled to $-2°$, but only a turbidity resulted. The solution was therefore diluted with an equal volume of water, again cooled to $-2°$, and slowly warmed to 20°. The proteid separated as a viscid liquid measuring 24^{cc} and when washed with water and alcohol gave 10.0 grams of preparation **46**. From the washings of **46** by cooling to 0° there separated 0.56 gram of preparation **47**. The solution I, decanted from precipitate J, was diluted with an equal volume of water and cooled to 0°. The substance which separated was washed with water and alcohol and when dried weighed 9.15 grams and formed preparation **48.** The solution from which **48** had separated contained too little proteid to save.

Dried at 110° these preparations gave the following results on analysis, which are arranged in the table in the order of their solubility.

	42	**44**	**43**	**45**	**46**	**47**	**48**
Carbon	51.09	51.14		50.86	50.94		50.65
Hydrogen	6.83	6.89		6.89	6.89		6.84
Nitrogen	18.08	18.10	17.82 +	17.95	17.79	17.77	17.56
Sulphur	0.38	0.33		0.46	0.27		0.44
Oxygen	23.62	23.54		23.84	24.11		24.51
	100.00	100.00		100.00	100.00		100.00
Ash	0.59	0.47	?	0.69	0.51	0.54	8.86
Amount	25.00	18.50	0.40	2.62	10.00	0.56	9.15 grams.

If the analyses of preparations **37**, **39**, **42** and **44**, which constitute the greater part of the proteid substance of **35** and **36**, are compared, it will be seen that they are in very close agreement and it is fair to presume that they represent very nearly the true composition of this the principal proteid of the blue lupin. If these analyses are also compared with those of conglutin from the yellow lupin, it will be evident that the two varieties of lupin contain one and the same globulin, especially since a rigid comparison of the reactions of purified preparations from the two seeds failed to reveal the slightest difference. The following table will facilitate a comparison of the above mentioned figures.

CONGLUTIN.

	Blue Lupin.					Yellow Lupin.
	37	**39**	**42**	**44**	Average.	Average.
Carbon	51.25	51.04	51.09	51.14	51.13	50.91
Hydrogen	6.96	6.75	6.83	6.89	6.86	6.88
Nitrogen	18.11	18.15	18.08	18.10	18.11	17.93
Sulphur	0.32	0.24	0.38	0.33	0.32	0.52
Oxygen	23.36	23.82	23.62	23.54	23.58	23.76
	100.00	100.00	100.00	100.00	100.00	100.00

If now we compare the analyses of the more soluble fractions as shown in the following table, they will be seen to be quite similar to each other but decidedly different from the more soluble globulin of the yellow lupin.

	38	**40**	**41**	**46**	**47**	**48**	Average.	Soluble globulin yellow lupin.
Carbon	50.82	50.98	50.79	50.94		50.65	50.84	49.58
Hydrogen	6.66	6.83	6.79	6.89		6.84	6.80	6.80
Nitrogen	17.69	17.66	17.64	17.79	17.77	17.56	17.69	18.27
Sulphur	0.49	0.38	0.39	0.27		0.44	0.39	1.42
Oxygen	24.34	24.15	24.39	24.11		24.51	24.28	23.93
	100.00	100.00	100.00	100.00		100.00	100.00	100.00

A comparison of the reactions of **41** with those of **37** showed that much less difference existed between the extreme fractions from the blue lupin than between those from the yellow. A ten per cent. solution of **37** in ten per cent. brine gave a considerable precipitate when diluted with twice its volume of water, while three times its volume were required to produce a slight precipitate in similar solutions of **41.** Solutions of both were precipitated with equal quantities of acid, **41** not needing the large excess of acid to cause precipitation which the soluble product from the yellow lupin required.

A solution of five per cent. of **37,** in ten per cent. brine, even after prolonged heating at 99°–100°, appeared wholly unaffected until the solution was subsequently cooled, when it solidified. A similar solution of **41** began to yield a flocculent coagulum at 75°, which at 80° was voluminous. After heating in a boiling water bath for some time nearly all the proteid was coagulated. As to the relations of these two substances, what was said on page 361, in our opinion, applies equally in this case.

CONCLUSION.

Both yellow and blue lupin seeds contain very little proteid matter soluble in water. The total quantity of proteid soluble in pure water obtained from the yellow lupin amounted to only 0.37 per cent. Of this a part consists of proteose. Whether the remainder is albumin, or a globulin soluble in extremely dilute salt solutions, which therefore could not be completely separated by dialysis, was not determined. Peptone is not contained in the freshly ground seed but is formed in small quantity after prolonged contact with water.

The greater part of the proteid matter contained in these seeds is soluble in saline solutions, the yellow lupin yielding 26.2 per cent. This is the body known as conglutin, but as heretofore described and as usually obtained it is contaminated with other substances present in the seed. Preparations from the blue lupin are usually much purer than those from the yellow, for the latter contain a considerable quantity of some sulphur containing substance from which conglutin can be separated by fractional precipitation out of dilute salt solutions. This explains why Ritthausen's conglutin from the yellow lupin contained twice as much sulphur as that from the blue lupin.

When purified no difference in properties and reactions can be detected between preparations from the two seeds.

The composition of conglutin as obtained by us is shown by the following figures.

CONGLUTIN.

	Yellow Lupin.	Blue Lupin.
Carbon	50.91	51.13
Hydrogen	6.88	6.86
Nitrogen	17.93	18.11
Sulphur	0.52	0.32
Oxygen	23.76	23.58
	100.00	100.00

Conglutin is readily soluble in sodium chloride solutions containing upwards of five per cent. of the salt. By sufficient dilution it is precipitated, a syrupy liquid separating which is rendered opaque and solid by treatment with water. Dissolved in salt solution, it is apparently unaffected by prolonged heating in a boiling water bath, but solutions thus heated on standing and cooling form a solid opalescent jelly which becomes clear and fluid on again heating. Unlike other globulins conglutin does not yield insoluble (coagulated) products by washing with alcohol or drying.

After exhausting lupin meal with salt solution, a small quantity of proteid can be extracted by two-tenths per cent. potash water, from which it is precipitated by adding acetic acid in slight excess but not by making the solution neutral to litmus. Only one preparation of this substance was made, which gave the following results on analysis.

Carbon	51.40
Hydrogen	6.79
Nitrogen	16.43
Sulphur	1.03
Oxygen	24.35
	100.00

Owing to the insolubility of this substance in any but alkaline fluids and the difficulty of making preparations of known purity nothing further was learned respecting it.

EFFECT OF MINUTE QUANTITIES OF ACID ON THE SOLUBILITY OF GLOBULIN IN SALT SOLUTIONS.

By Thomas B. Osborne and Geo. F. Campbell.

In a paper on crystallized vegetable proteids by one of us (Osborne, Am. Chem. Jour., XIV, 671) it was shown that the principal globulin of the seed of the castor bean is partly insoluble in a saturated solution of sodium chloride, and partly soluble therein, and that these two parts are alike in composition and but slightly different in reactions. Having found a proteid of similar composition and properties in the sunflower seed, we have again turned our attention to the globulin of the castor bean, with the hope that we might discover the cause of this partial precipitation by saturating its solutions with salt.

A considerable quantity of this globulin was prepared by extracting castor pomace with three per cent. brine at 60° and allowing the filtered extract to cool to the temperature of the room. The proteid thus separated was washed with water and alcohol, and dried over sulphuric acid. It formed a slightly colored dense powder consisting of a mixture of spheroids and octahedral crystals.

Seventy-five grams of this preparation were treated with 750^{cc} of ten per cent salt solution and, after agitating for some time, filtered from a large insoluble residue. This latter was washed thoroughly with ten per cent. brine and the filtrate and washings were united. In this way the substance was separated into two parts, one soluble and one insoluble, in cold salt solution. This solution was then saturated with sodium chloride and the large precipitate produced was filtered off, dissolved in ten per cent. brine and this process twice repeated. The saturated sodium chloride solutions filtered from these precipitations were united and dialyzed free from salt, the proteid thus precipitated was washed with water and alcohol, and dried over sulphuric acid. Thus 12.39 grams of preparation **A** were obtained, representing the fraction of this globulin soluble in cold ten per cent. brine and *not* precipitated by saturation with sodium chloride. The proteid which had been several times precipitated from solution by saturation with salt, as just described, was dissolved in ten per cent. brine, and the solution filtered perfectly clear and dialyzed. By the usual treatment 18.52 grams of preparation **B** were obtained, representing the part of this globulin soluble in cold ten per cent. brine, but insoluble in saturated brine.

The part of the globulin which failed to dissolve in cold ten per cent. sodium chloride solution was next treated with salt solution of this strength, heated to 60° and allowed to cool to 14°. The greater part of the proteid was dissolved by this treatment, and after decanting the solution the undissolved residue was treated three successive times in the same way. The solutions obtained by this process were filtered clear from a slight quantity of suspended matters and saturated with sodium chloride, which precipitated all but an insignificant quantity of the dissolved proteid.

This precipitate was dissolved in ten per cent. brine filtered clear and dialyzed. The precipitated globulin, after filtering off, washing and drying, weighed 12.37 grams, and formed preparation **C.**

The part of the original globulin which failed to remain in solution after the above treatment with hot salt solution was dissolved in brine at 60°, filtered clear and allowed to cool over night. Very nearly all the proteid precipitated on cooling, and was washed and dried, giving preparation **D,** weighing 1.66 grams.

These four preparations were analyzed with very great care with the following results:

	A.	B.	C.	D.
Carbon	50.99	51.10	51.12	51.25
Hydrogen	6.92	6.87	6.95	6.97
Nitrogen	18.95	18.67	18.83	18.74
Sulphur Oxygen	23.14	23.36	23.10	23.04
	100.00	100.00	100.00	100.00
Ash	0.19	0.14	0.14	0.41

The difference between these results barely exceed the usual errors of analysis, although several determinations of each element in the different fractions indicate that these differences are not due to analytical errors. It would not be safe, however, to take such slight variations into account, especially when we consider the great difficulty in making perfectly pure preparations of proteids as well as exact combustions. We must, therefore, conclude that no difference in composition is proved to exist between these four preparations which present such marked differences in solubility. A comparative examination of these substances was made with the following results:

In ten per cent. brine at 20° A dissolved completely, B with the exception of a small residue, C partly, much being insoluble, while D did not dissolve at all. B and C dissolved nearly completely when warmed to 45°.

Five grams of each of A, B and C were dissolved in 50^{cc} of ten per cent. sodium chloride solution by heating to 50°. On cooling to 20° B and C deposited a very slight amount of proteid, but on cooling to 12° A gave a clear solution, while B deposited a not inconsiderable quantity of substance and C decidedly more. To 5^{cc} of each of these solutions at 20° were added 5^{cc} of water. A remained clear, B gave a slight precipitate, and from C practically all the dissolved globulin was thrown down, since further dilution of the solution filtered from this precipitate gave only a turbidity. With 5^{cc} more water added to A a turbidity resulted, while the same amount added to B gave a heavy precipitate. The dilution of A and B was continued until the strength of the salt solution was 1.66 per cent., when B yielded no more by further dilution, and A still contained dissolved globulin.

Five per cent. solutions of each of these proteids, in ten per cent. brine, when heated became turbid, A and B at 88°, C at 87° and flocculent coagula formed in A and C at 90° and in B at 91°, thus showing no difference in relation to heat.

Saturation with sodium chloride of the ten per cent. solution of this globulin gave a small precipitate in A, but completely precipitated B and C.

This partial precipitation of A shows that the substance precipitated by saturating with salt is a derivative of the body originally soluble in saturated brine.

In order to find the effect of minute quantities of acid added to these several fractions, two grams of each were treated with 20^{cc} of 0.05 per cent. acetic acid, or five milligrams of acid for each gram of proteid, which caused no noticeable solution. Two grams of salt were added to each whereby A was largely, B partly, and C but slightly dissolved. Heated to 50°, A gave a clear solution, B a nearly clear solution, while C dissolved only partly and precipitated on cooling to 20°.

The acid added to these solutions could not be detected by very delicate litmus paper, the reaction being perfectly neutral.

A solution of A was prepared in exactly the same manner, omitting the acetic acid, and the two solutions compared.

Diluted with an equal volume of water, no precipitate formed in either solution, but with two volumes an abundant precipitate fell in that containing the acid, while only a very slight precipitate formed in the other.

Saturated with sodium chloride, the solution with acid gave a large precipitate, that without acid only a small one.

It is thus clear that a quantity of acid too small to be detected with litmus or by analysis causes changes in the fraction soluble in saturated salt solution, whereby products result having the same general properties as those exhibited by the fractions B and C.

In order to obtain more evidence on this point, these experiments were repeated and extended, using crystallized edestin from hemp seed.

Five grams of edestin were suspended in 50^{cc} of 0.05 per cent. acetic acid, 5 grams of salt were added and the solution was warmed to 50° to dissolve the insoluble "albuminate" present.

Another solution was then prepared in exactly the same manner without using acetic acid. Both solutions reacted perfectly neutral to litmus paper.

Equal volumes at the same temperature, and in test tubes of the same size were immersed in the same bath of cold water. The solution containing acid precipitated first and in far greater amount than the other.

Five cubic centimeters of each were diluted with an equal volume of water at 20°. The solution with acid gave a much greater precipitate than the other. After allowing these to stand and cool to 10° the precipitates were filtered off and one drop of strong acetic acid was added to each filtrate. The solution which had been made with acid gave only a turbidity, while a considerable precipitate formed in the other, showing that dilution precipitates the solution to which acid had been added far more readily than the solution without the acid.

Equal volumes of these solutions were saturated with salt, the precipitates filtered off, and one drop of acetic acid was added to each filtrate.

That from the solution made with acid gave only a turbidity while the other gave a very heavy precipitate.

Here again we see that the addition of a quantity of acid, too small to detect after the solution has been made, brings about changes similar to those naturally occurring in the seeds and extracts of the castor bean and sunflower and to those following the addition of acid to that part of the globulin of the castor bean which is soluble in saturated salt solutions.

Whether such changes occur only through the influence of acids is a question not settled, and regarding which some doubt is raised by the fact that preparations of crystallized edestin which were originally soluble in ten per cent. sodium chloride solution, with the exception of a small quantity of "albuminate" and yielded solutions which gave only traces of precipitates on saturating with sodium chloride, were found, after keeping dry and in cork-stopped bottles two and four years, to have become largely insoluble in cold salt solution and to yield solutions which were nearly completely precipitated by saturating with salt. The insoluble portion dissolved nearly completely in ten per cent. brine at 60° to a solution precipitated somewhat by cooling to 20° and abundantly at lower temperatures, copiously precipitated by dilution with an equal volume of water, and almost completely precipitated by saturating with sodium chloride. It is not at all impossible that this change, too, may have been caused by acid, for these preparations stood during several years in the laboratory, the air of which at times contained some acid vapors. We thus see the same changes taking place in the dry proteid on long keeping as those definitely caused by minute quantities of acid.

That this change to a condition in which the globulin is precipitated by salt is an intermediate step towards the formation of the insoluble form, the so-called "albuminate" of Weyl, is evident from what has been already stated, especially the fact that by treatment with warm salt solution this insoluble matter can be changed into the form soluble in cold salt solution and precipitable by saturation with salt.

In this connection it is interesting to note that the only animal globulin obtained from an acid tissue is myosin, and that this myosin not only is readily precipitated by saturating with salt, but quickly and spontaneously changes to the insoluble form known as syntonin. In the dead muscle the amount of acid greatly exceeds that used in our experiments, for its presence is plainly shown by the strong acid reaction of the muscle serum. In alkaline muscle plasma myosin is not found, but myosinogen, paramyosinogen and myoglobulin. The last three are described as precipitated by saturation with sodium chloride, but it may be that when tested in this respect the formation of acid had already begun and had reached a point where it caused precipitation with salt but could not be detected by the usual tests.

THE PROTEIDS OF THE SUNFLOWER SEED.

By Thomas B. Osborne and George F. Campbell.

The only published observations on the proteid of the sunflower seed which we have found were made by Ritthausen (Pflüger's Archiv XXI. 89, 1880) and by Vines (Jour of Physiology III. 93). By extracting with very dilute alkali Ritthausen obtained from finely ground oil-free meal 44.71 per cent. of proteid, having the composition given under **1.** By treating with sodium chloride brine, diluting the extract with five volumes of water and passing carbonic acid through the solution, he got 25.3 per cent. with the composition given under **2,** and by exhausting a preparation obtained in the same manner as **1** with brine, and proceeding as with **2,** he got a preparation whose analysis is given under **3.**

Sunflower Proteid. Ritthausen.

	1	2	3
Carbon	51.88	51.51	51.18
Hydrogen	6.66	6.76	6.82
Nitrogen	17.99	18.21	18.06
Sulphur	0.71	0.61	23.94
Oxygen	22.76	22.91	
	100.00	100.00	100.00

Vines states that if a section of sunflower seed be treated with ether to remove oil it will be found that the aleurone grains, though readily soluble in 10 per cent. sodium chloride solution, will not dissolve in saturated solution; if, however, they be treated with alcohol instead of ether, the globulin of which these grains consist behaves like vitellin, that is, it dissolves in a saturated solution of sodium chloride.

Vines further states that "it is of interest to note the fact that most of the substances which I found in the grains recur in the crystalloids, more especially vitellin and its derivatives; thus the peculiar globulin which forms the crystalloids of Ricinus appears to be in the grains of Helianthus."

Ritthausen's results indicate that by far the greater part of the proteid matter of the sunflower-seed has a uniform composition, and that a large part of this proteid is insoluble in salt solution, but soluble in dilute alkali. The composition which he found for this proteid resembles that of the globulin edestin, which we have found in many seeds, the only difference being a slightly lower content of nitrogen. On this account it seemed to us desirable to examine this proteid and determine its relation to edestin. This was the more important, because Vines' statement of its behavior when treated with ether and with alcohol showed it to possess the same peculiar relations to salt solutions observed by one of us (Osborne, Report Conn. Expt. Station, 1892, p. 138, and Am. Chem. Jour. **14,** 671) in studying the globulin of the castor bean, *Ricinus communis.* As the deportment of globulins to saturated sodium chloride solutions has been made the basis of a division of these bodies into two main classes, it is important for us to know whether this is founded on fundamental differences in the proteids, or is simply due to the unlike conditions under which the proteids are found.

Sunflower seeds were crushed and a large part of the woody shells removed. The meal was then ground under benzine and, after freeing from oil, air dried. This meal when treated with ten per cent. sodium chloride brine yielded an extract of a strong blackish green color, from which a considerable quantity of proteid could be separated by dilution, by dialysis or by saturation with sodium chloride.

When heated, this extract becomes turbid at 48° and flocks separated at 62°. The solution heated to 75° and filtered from this slight coagulum yields a large precipitate when saturated with salt, thus showing that most of the substance thus precipitated is not, as *myosin* is said to be, coagulated below 75°.

The unheated extract saturated with sodium chloride gives a precipitate which when dissolved in ten per cent. brine coagulates at the same temperature as the original extract, but the amount of this coagulum is but a small fraction of the substance precipitated by saturation with salt.

The following preparations were made, but as subsequently pointed out were found to be more or less impure, so that these results have value only as affording evidence of the uniform composition of the globulin extracted by salt solution from the sunflower seed.

	1	2	3	4	5	6	7	8	9
C...	51.57	51.77	51.65	51.69	51.85	----	----	----	----
H...	6.81	6.83	6.72	6.80	6.84	----	----	----	----
N...	18.16	18.20	18.17	18.24	18.00	18.20	18.23	18.09	18.07
S...	23.46	23.20	23.46	0.78	23.31	----	----	----	----
O...				22.49					
	100.00	100.00	100.00	100.00	100.00				

Of these, **1** is the total globulin extracted by brine from one portion of oil-free meal; **2, 3, 4** and **5** are fractional precipitates from another similar extraction; **6,** substance precipitated by saturating the salt extract with sodium chloride; **7** and **8,** substance soluble in saturated sodium chloride solution, and **9,** that precipitated by cooling an extract made with a one and a half per cent. salt solution heated to 60°.

These results show that the most abundant proteid of the sunflower seed consists of a single globulin, and that the proteid precipitated by saturating with sodium chloride contains the same amount of nitrogen as the proteid soluble in a saturated solution of this salt. As Vines stated that the substance of the aleurone grains was soluble in a saturated salt solution after treatment with alcohol, while after treatment with ether it was insoluble therein, although soluble in ten per cent. salt solution, we thought that possibly by treating our meal with alcohol we might remove some substance, perhaps an acid soluble in alcohol but insoluble in ether, which might be the cause of this peculiar behavior of the proteid. We accordingly extracted a quantity of sunflower meal with alcohol of 0.820 sp. gr. and in order to determine whether acid had been removed we attempted to titrate a portion of the extract with a one per cent. solution of potash. On adding the alkali a colored precipitate resulted which rendered the indicator (*phenolphthalein*) useless. The attempt was then repeated, omitting the indicator. When the potash solution was added a bright chrome yellow color resulted, which gradually increased with the formation of a precipitate as the quantity of potash was increased. With a larger excess of potash the precipitate redissolved. This reaction we found to be due to heliantho-tannic acid (Ludwig and Kromayer, N. Br. **99,** 1 and 285). The results of our investigation of this acid will be given in another paper.

Having now found a very delicate test for this acid, we applied it to our preparations of globulin and obtained a strong reaction in every case. It was therefore necessary to remove this acid from the meal before attempting to obtain the proteid and accordingly the extraction of the meal with alcohol was continued. It was, however, practically impossible to remove the acid so completely as to obtain no yellow reaction when the extract was treated with potash.

The meal which had been nearly freed from this acid was washed with ether and air dried. 100 grams were extracted with ten per cent. sodium chloride brine and the filtered extract saturated with salt. An abundant precipitate separated, just as with meal which had not been treated with alcohol. This was filtered off, dissolved in ten per cent. brine and again precipitated by saturation with salt. This precipitate was again dissolved in salt solution, filtered perfectly clear and dialyzed. The globulin which was thus precipitated was filtered out, washed with water and alcohol and dried over sulphuric acid. This preparation, **10**, weighed 7.4 grams and had the following composition :

SUNFLOWER GLOBULIN, *Preparation* **10.**

Carbon	51.27
Hydrogen	6.55
Nitrogen	18.21
Sulphur	0.78
Oxygen	23.25
	100 00
Ash	0.31

The saturated sodium chloride solutions filtered from the two precipitations of **10**, were united and dialyzed until free from chloride, the resulting precipitate was filtered out and treated as **10** had been. Preparation **12** was thus obtained, which on analysis gave the following results :

SUNFLOWER GLOBULIN, *Preparation* **12.**

Carbon	51.58
Hydrogen	6.55
Nitrogen	18.29
Sulphur	0.97
Oxygen	22.61
	100.00
Ash	0.29

As both the preceding preparations were found to contain detectable quantities of helianthotannic acid another attempt was made to prepare some meal which should be practically free from this acid.

One hundred grams of meal were therefore extracted in a Squibbs percolator with alcohol of 0.820 sp. gr., the whole being kept at 65° C. until 1500^{cc} of extract were obtained.

The temperature was then raised to 75° and the extraction continued, about seven liters of alcohol being passed through the meal. The last two liters were evaporated and left a residue weighing only 0.28 grams.

The meal residue was air dried and extracted with ten per cent. sodium chloride solution. The extract was then filtered clear and saturated with ammonium sulphate, the precipitated proteid filtered out, dissolved in brine, the solution filtered perfectly clear and dialyzed.

The proteid was thus precipitated in large spheroids and was filtered out, washed with water and alcohol, dried over sulphuric acid and found to weigh 15.5 grams, preparation **13.** This substance was freer from coloring matter than any before made, and had the following composition:

SUNFLOWER GLOBULIN, *Preparation* **13.**

Carbon	51.54
Hydrogen	6.99
Nitrogen	18.58
Sulphur	1.00
Oxygen	21.71
	100.00
Ash	0.47

This preparation, which was very nearly white in color, dissolved after drying almost wholly in ten per cent. sodium chloride brine at 20°, giving a solution slightly tinged with greenish brown, which on dilution yielded an abundant precipitate that on warming, while suspended in the diluted solution, redissolved completely and again separated on cooling in spheroids, and on settling united to a coherent layer.

Solutions in ten per cent. sodium chloride brine behaved as follows:

When saturated with magnesium sulphate at 20° or sodium sulphate at 34°, the proteid was completely thrown out of the solution. When saturated with sodium chloride it was partly precipitated.

With mercuric chloride, picric acid or tannic acid a heavy precipitate was produced.

With minute quantities of nitric, sulphuric, hydrochloric or acetic acid the globulin was precipitated.

In pure water this preparation formed a plastic mass, but none dissolved.

In water containing a minute quantity of acid it dissolved readily and completely.

With the xanthoproteic, Millon's, biuret and Adamkiewics' tests the usual proteid reactions were obtained.

When dissolved in ten per cent. sodium chloride solution and tested for heat coagulation point in the usual manner a turbidity formed at 90°, and a flocculent coagulum began to separate at 93°, increasing as the temperature was raised toward 100°. After heating some time in a boiling water bath a considerable coagulum formed, yet a large proportion of the substance still remained in solution, as shown by the voluminous precipitate produced on adding acetic acid to the solution filtered from the coagulum.

In composition and reaction this preparation agrees with the globulin edestin except that a part is precipitated by saturating its solutions in brine with sodium chloride. In composition the part precipitated by saturating with salt and that remaining in solution are alike. We have in another paper (this Report, p. 369) pointed out that the globulin of the castor bean shows a similar behavior, and that the part precipitated by saturating with salt is a derivative of the part soluble in saturated salt solutions. We have further shown that the addition to a solution of edestin of a quantity of acetic acid too small to detect after mixing with the proteid, causes a precipitation of the edestin on saturating its solution with brine, and that under these conditions, the proteid otherwise behaves like the globulin from the castor bean and sunflower seed.

As helianthotannic acid contains about 53.0 per cent. of carbon the presence of two per cent. of this acid in our preparation would but slightly raise the figures obtained for carbon and reduce those for nitrogen by about 0.35 per cent. The composition of the purer preparations which we have obtained differ from edestin to about this extent.

It is therefore our opinion that the sunflower seed contains as its principal proteid the globulin edestin, but that as obtained by extraction from the seed, this is mixed with helianthotannic acid, from which we have not succeeded in separating it completely.

Having thus found that a large part of this globulin is insoluble in saturated salt solutions under all the conditions of our tests, we were led to repeat Vines' experiments, but have been unable to confirm his observations, the aleurone grains appearing to be wholly unaffected by saturated salt solution after treatment of the seed with alcohol.

THE PROTEIDS OF THE COW PEA, (*Vigna Catjang.*)

By Thomas B. Osborne and George F. Campbell.

The proteids of this plant have never been, to our knowledge, the subject of study. Because of its great and increasing agricultural importance, and as a plant differing botanically from those included in our investigation of "legumin," the proteids of its seeds have much interest. The material examined was prepared by coarsely grinding the peas, separating the black seed-coats by a current of air, and then grinding the coarse meal to a fine flour. Two kilograms of this flour were treated with a quantity of ten per cent. sodium chloride solution, the extract was strained through fine bolting cloth and allowed for three hours to deposit the greater part of the suspended starch. The extract was then run through a DeLaval centrifugal separator, whereby most of the remaining suspended starch and fiber was removed, and lastly was filtered perfectly clear by passing through a thick layer of filter paper pulp. The extract was saturated with ammonium sulphate, the precipitated proteids were collected on a filter, and dissolved in brine. The solution was filtered perfectly clear and dialyzed for four days.

The proteid, thus separated, in the form of spheroids, was designated **A**, and the solution filtered therefrom was marked **B**. **A** was collected on several paper filters. One portion was washed very thoroughly with water and with alcohol and, dried over sulphuric acid, gave preparation **1**, which weighed 29.7 grams. The rest of **A** was dissolved in one liter of five per cent. sodium chloride brine, and the solution filtered perfectly clear. On adding one liter of distilled water a large precipitate, **D**, separated, which was allowed to settle over night. The fluid, **C**, was then decanted from the proteid, **D**, which had formed a coherent deposit. **D** was dissolved in 150^{cc} of ten per cent. sodium chloride brine with which it readily yielded a clear solution, and water was added to make the volume one liter. A rapidly settling precipitate appeared that soon united to a coherent layer, from which the nearly clear liquid was decanted. After thoroughly washing this precipitate with water and with alcohol and drying it over sulphuric acid there resulted 50.9 grams of preparation **2**. The solution decanted from **2** was treated with 200^{cc} of water, causing a precipitate which, washed and dried as before, gave 12.83 grams of preparation **3**. Similarly the solution decanted from **3**, when mixed with 200cc more water, gave 6.2 grams of preparation **4.**

The solution decanted from **4** was dialyzed until chlorides were removed, which treatment precipitated all but a trace of the dissolved proteids. In this way 4.4 grams of preparation **5** were obtained.

The solution **C**, decanted from the precipitate **D**, as described on page 380, was diluted with 500cc of water. The proteid thus thrown down, after washing and drying, formed preparation **6**, which weighed 16.9 grams. The filtrate from **6** was dialyzed for two days, and a deposit obtained weighing when dry 10.5 grams, **7.** The filtrate from **7** was nearly free from proteid matter.

These preparations were analyzed, after drying at 110°, with the following results :

	1	2	3	4	5	6	7
Carbon	52.45	52.69	52.63	52.56	52.52	52.59	52.27
Hydrogen	6.92	6.77	6.90	6.98	7.04	7.08	6.97
Nitrogen	17.16	17.18	17.50	17.18	17.27	17.24	16.99
Sulphur	0.40	0.57	0.52	0.62	0.53	0.56	0.50
Oxygen	23.07	22.77	22.45	22.66	22.64	22.53	23.57
	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Ash	0.32	0.64	0.47	0.50	0.42	0.45	0.16

It will be noticed that the first six preparations are nearly identical in composition. Of these, **1** represents the globulin precipitated by dialyzing the solution of the ammonium sulphatep recipitate (which contained all the proteid matter extracted from the seed). **2, 3, 4** and **5** are four fractions of that portion of the substance (of which **1** was a part) that is most readily precipitated by dilution. **6**, which also agrees with the foregoing, is that part of the remainder thrown down by further diluting the solution filtered from the precipitate, yielding **2, 3, 4** and **5**, while **7, 8, 9** and **10** are portions more soluble in very dilute salt solution. In composition, **7** differs from **1–6.** Although the figures obtained for **1** closely agree with those for **2, 3, 4** and **5**, the former has been shown to contain about ten per cent. of the globulin, **7**, whose presence in this proportion affects but slightly the percentage composition of **1.** It will be noticed that **8** and **9** contain more carbon and sulphur than the other preparations. If these analyses are compared with those of similarly obtained preparations from the pea and vetch, it will be seen that they are all in close agreement. The relation of these proteids will be discussed later.

Remarking that **7** agrees in composition with the globulin phaseolin and that preparations **1–6** have a composition corresponding to a mixture of equal parts of phaseolin and legumin, we thought it important to determine whether or not this substance contained these two proteids. Phaseolin being much more readily soluble in dilute saline solutions than legumin, these globulins may be separated by fractional precipitation. Accordingly twenty grams of **2** were treated with 500^{cc} of five per cent. sodium chloride brine, and the solution was filtered off from the undissolved "albuminate." The filtrate, which measured 378^{cc}, was diluted with four times its volume of water, to produce a one per cent. brine, in which phaseolin dissolves freely and legumin somewhat sparingly. An abundant precipitate fell, which was filtered out, washed and dried as usual, and formed preparation **11.** The filtrate from **11** was saturated with ammonium sulphate, and the very small precipitate produced was dissolved in water and dialyzed. Only 0.3 grams of globulin was thus obtained, showing that very little of the proteid was soluble in one per cent. salt solution.

The residue which remained undissolved after treating **2** with five per cent. sodium chloride brine, was washed by decantation with salt solution, heated to about 50° and the filtered washings dialyzed. Preparation **12** was thus precipitated.

The portion of **2** that remained undissolved by this treatment was thoroughly washed with water and alcohol and dried over sulphuric acid, making preparation **13.** These were dried at 110° and analyzed with results that follow :

	11	12	13
Carbon	52.74	52.70	52.87
Hydrogen	6.94	6.97	6.95
Nitrogen	17.22	17.21	17.29
Sulphur	0.40	0.42	0.49
Oxygen	22.70	22.70	22.40
	100.00	100.00	100.00
Ash	0.66	0.73	0.64

It is evident that no fractional separation was accomplished by this treatment, and that the most abundant globulin of the cow pea must be regarded as a distinct proteid, differing from any heretofore described. For this proteid we propose the name *vignin.*

Its composition as represented by an average of the foregoing figures is here stated :

VIGNIN.

Carbon	52.64
Hydrogen	6.95
Nitrogen	17.25
Sulphur	0.50
Oxygen	22.66
	100.00

The reactions of vignin are as follows: In cold or warm water, when free from soluble salts, it dissolves to a considerable extent, the solutions resulting being precipitated by adding a very little salt. The precipitate so separated dissolves completely on adding more salt.

It is readily soluble in sodium chloride solutions, containing upwards of five per cent. of salt, from which solutions it is promptly precipitated by dilution. In two and one-half per cent. salt solutions relatively little, and in 1.0 per cent. very little dissolves. It is readily and completely soluble in dilute acids and alkalies in absence of salts. Solutions in very dilute nitric or hydrochloric acid are precipitated by salt or by an excess of these acids. In dilute sulphuric acid it is much less readily soluble than in the acids just named, and is not precipitated by an excess of sulphuric acid and but slightly on adding salt. Solutions in very dilute acetic acid are not precipitated by an excess of this acid but give heavy precipitates on adding sodium chloride. Dissolved in one-half per cent. sodium carbonate solution, the proteid is precipitated by neutralization, the separated proteid at once dissolving on adding salt. Dissolved in ten per cent. sodium chloride brine, this globulin behaves as follows:

By hydrochloric acid it is not precipitated until a relatively considerable quantity of the acid is added. By this acid the globulin is less readily thrown down than legumin but more readily than phaseolin.

The same is true of acetic acid, of which a somewhat large quantity is required to cause a precipitate. Phaseolin is not precipitated at all under these conditions.

By diluting the salt solutions of vignin it is apparently more readily precipitated than legumin, and far more readily than phaseolin.

Saturation of solutions of vignin with sodium chloride or magnesium sulphate gives no precipitate, but saturation with sodium sulphate at 34° causes nearly complete precipitation of the proteid.

Mercuric chloride gives no precipitate; tannic acid and picric acid make heavy precipitates in its solutions.

With Adamkiewics', Millon's, the biuret and xanthoproteic tests the usual proteid reactions are obtained.

Strong solutions of this globulin dissolved in ten per cent. sodium chloride become turbid when heated to 98°, and after continued heating set to a jelly.

Besides vignin the cow pea contains a small quantity of proteid matter represented by preparation **7**, which in composition, as well as reactions, agrees very closely with phaseolin. Phaseolin differs from all other plant globulins, which we have thus far observed, in not being precipitated from its solution in ten per cent. sodium chloride brine by a large quantity of acetic acid. In this respect **7** behaves like phaseolin.

The composition of phaseolin as obtained from different seeds is shown by the following statement:

PHASEOLIN.

	Cow pea.	Kidney bean.	Adzuki bean.
Carbon	52.27	52.58	52.56
Hydrogen	6.97	6.84	6.97
Nitrogen	16.69	16.47	16.45
Sulphur	0.50	0.56	0.57
Oxygen	23.57	23.55	23.45
	100.00	100.00	100.00

The solution **B**, filtered from **A**, as described on page 380, was saturated with ammonium sulphate and the small precipitate produced was dissolved in a little dilute salt solution, filtered perfectly clear and dialyzed for two weeks. A precipitate resulted which was filtered out, washed with water and alcohol and dried over sulphuric acid. This preparation, **8**, weighed 3.2 grams. The filtrate from **8** was dialyzed ten days longer, but as nothing separated, the solution was dialyzed against alcohol. A small precipitate, **9**, appeared, which weighed 3.75 grams.

These preparations after drying at 110° were analyzed with the following results :

	8	9
Carbon	53.13	53.36
Hydrogen	7.09	7.05
Nitrogen	16.51	16.21
Sulphur	1.09	1.13
Oxygen	22.18	22.25
	100.00	100.00
Ash	0.65	0.81

It will be noticed that these two preparations agree quite closely in composition. Although 8 was precipitated by dialysis in water and is unquestionably a globulin, while 9 could not be precipitated by even prolonged dialysis, nevertheless it is our opinion that these are one and the same proteid. In a subsequent paper we hope to point out the relations of this globulin to the proteids obtained similarly from other leguminous seeds.

Conclusion.

1. The chief proteid of the cow pea is a globulin, much resembling the legumin of the pea and vetch, but essentially different in composition and properties, for which we propose the name *vignin.* Its composition, as found by the average of closely agreeing analyses of nine fractional precipitates, is as follows :

Vignin.	
Carbon	52.64
Hydrogen	6.95
Nitrogen	17.25
Sulphur	0.50
Oxygen	22.66
	100.00

2. Besides vignin, the cow pea contains a globulin which has the composition and, so far as could be determined, the properties of phaseolin, which we have found in the kidney bean (*Phaseolus vulgaris*), and the adzuki bean (*Phaseolus radiatus*).

3. The cow pea contains a third globulin, extremely soluble in very dilute salt solutions, which could be precipitated but partially by dialysis in water and completely only in the coagulated

form by dialysis in alcohol. This substance closely resembles in properties and composition bodies obtained from several other leguminous seeds. Its composition, as found by analysis of two precipitates, one obtained by dialysis in water and the other by further dialysis in alcohol, is as follows:

Carbon	53.25
Hydrogen	7.07
Nitrogen	16 36
Sulphur	1.11
Oxygen	22.21
	100.00

PROTEID OF THE WHITE PODDED ADZUKI BEAN (*Phaseolus radiatus*).

BY THOMAS B. OSBORNE AND GEORGE F. CAMPBELL.

This is a small red bean cultivated in Japan. The seeds used in this investigation were grown in Kansas and sent to us by Prof. C. C. Georgeson.

As our object was to discover the nature of the globulin forming the chief proteid constituent of various leguminous seeds, no attempt was made to determine the total amount of proteid contained in this seed, nor to study the other proteid substances occurring in small quantity.

It was impossible, by any means at our command, to remove the closely adhering red seed-coat, but as it was found that this yielded but little coloring matter to salt solutions the entire seed was ground until all passed a sieve of fine bolting cloth.

Two kilograms of this meal were treated with eight liters of ten per cent. sodium chloride solution, and after stirring some time the mixture was strained on fine bolting cloth.

After standing long enough to deposit most of the suspended starch the extract was filtered quite clear and saturated with ammonium sulphate. The precipitate so produced was filtered out, suspended in water and, in order to remove the adherent ammonium sulphate, which prevented solution of the proteid in a sufficiently small volume of water, the mixture was dialyzed over night. The proteid was thus completely dissolved. The solution was filtered perfectly clear and again dialyzed four days. A large precipitate of globulin resulted, which was filtered out and a portion collected on a separate paper and washed thoroughly with water and alcohol and dried over sulphuric acid. This was found to weigh 13.21 grams and formed preparation **1.**

The remainder of the globulin was suspended in 850^{cc} of water and 150^{cc} of ten per cent. salt solution added, which yielded a nearly clear solution, showing the globulin to be readily soluble in one and a half per cent. brine. The solution was filtered clear and the filter washed with 100^{cc} of 1.5 per cent. salt solution. The filtered liquid, measuring 1100^{cc}, was treated with 500^{cc} of water, thereby throwing down a large, rapidly settling precipitate which, after decanting the fluid, was dissolved in ten per cent. salt solution, filtered perfectly clear and dialyzed for three days. The globulin was thus nearly completely precipitated, for further dialysis of the filtered solution caused separation of very little more. Under the microscope the globulin appeared as well developed spheroids. After filtering, this precipitate was washed with water and with alcohol and dried over sulphuric acid. This formed preparation **2**, weighing 41.5 grams.

The solution decanted from the first precipitation of **2**, caused by the addition of 500^{cc} of water as described above, was further diluted with 500^{cc} of water, which caused an abundant separation of proteid. After settling over night the clear solution was decanted from the precipitate and the latter washed thoroughly with water and with alcohol and dried over sulphuric acid, giving preparation **3**, weighing 31.34 grams.

The solution decanted from **3** was cooled over night in an ice chest to 9°, which caused a further separation of proteid in large spheroids. This was filtered off, washed with water and alcohol, dried over sulphuric acid and found to weigh 6.18 grams, preparation **4.**

The filtrate from **4** was dialyzed for 24 hours and filtered from an abundant precipitate. The latter was washed with water and alcohol, and after drying weighed 12.0 grams, preparation **5.** The filtrate from **5** gave only a trace of precipitate on further dialysis.

The preparations were dried to constant weight at 110° and analyzed. The following figures show that fractional precipitation had caused no separation and that the globulin is identical in composition with phaseolin as obtained from the white bean, *Phaseolus vulgaris.**

PHASEOLIN.

Adzuki bean.

	1	**2**	**3**	**4**	**5**
Carbon	52.31	52.56	52.74	52.74	52.44
Hydrogen	7.03	6.98	6.94	6.97	6.91
Nitrogen	16.43	16.41	16.34	16.62	16.47
Sulphur	0.57	0.62	0.56	0.49	0.61
Oxygen	23.66	23.43	23.42	23.18	23.57
	100.00	100.00	100.00	100.00	100.00
Ash	0.16	0.73	0.32	0.90	0.05

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* Report of this Station for 1893, page 186.

Average. Adzuki bean.	Average. White bean.
52.56	52.58
6.97	6.84
16.45	16.47
0.57	0.56
23.45	23.55
100.00	100.00

The reactions of phaseolin, whether obtained from the common white bean or the adzuki, are as follows :

In cold and warm water it is entirely insoluble.

In sodium chloride solutions it is readily soluble, one per cent. brine dissolving large quantities of phaseolin.

In dilute acids and alkalies it is readily soluble ; the solutions are precipitated by neutralization.

Solutions in dilute nitric or acetic acid are not precipitated even by large excess of acid.

Dissolved in ¼ per cent. sodium carbonate solution, phaseolin is precipitated by neutralization, the precipitate being wholly dissolved on adding sodium chloride.

Phaseolin dissolved in ten per cent. sodium chloride brine reacts as follows : It is *not* precipitated even by large excess of hydrochloric, nitric, sulphuric or acetic acids. By a large quantity of trichloracetic acid a precipitate is produced. By dilution with a sufficient quantity of water a precipitate results. Saturation with sodium chloride or magnesium sulphate does not precipitate the phaseolin, but saturation with ammonium sulphate completely throws it out of solution, while saturation with sodium sulphate at 34° precipitates it mostly but not entirely. Potassium ferrocyanide together with a large excess of acetic acid gives a precipitate.

With mercuric chloride dissolved in ten per cent. salt solution, no precipitate is produced. With tannin large precipitates result. With picric acid dissolved in ten per cent. salt solution, no precipitate forms until a considerable quantity of the acid is added, the precipitate thus produced dissolves on adding salt solution.

Phaseolin gives with the biuret, Adamkiewics', Millon's and xanthoproteic tests, the usual proteid reactions.

When solutions in ten per cent. sodium chloride brine are heated, turbidity occurs between 90° and 95° and a small flocculent coagulum separates at 97° to 98° ; even prolonged heating in the boiling water bath coagulates but a small part of this globulin.

The solution filtered from the globulin which had separated on dialyzing the solution of the proteids precipitated by saturating the seed extract with ammonium sulphate was again saturated with this salt and the precipitate thereby produced was dissolved in a small volume of water and, after filtering clear, the solution was dialyzed for six days. Three grams of a dark-colored globulin separated which seemed much contaminated with coloring matter. This was filtered out and the clear filtrate dialyzed five days longer, but no precipitate was obtained. The solution was then dialyzed into alcohol and the precipitate which resulted after drying weighed 8.5 grams. The filtrate contained but a trace of proteid. This substance was ground to a powder, thoroughly exhausted with water, washed with alcohol, dried and found to weigh 7.05 grams. Dried at 110° this preparation, **6**, had the following composition, which it will be noticed is similar to that of preparations obtained in a like manner from the pea, vetch and cow pea.

Adzuki bean.	Pea.		Vetch.	Cow pea.	
6	**5**	**8**	**20**	**8**	**9**
53.97	53.33	53.54	53.55	53.13	53.36
7.01	6.98	6.99	6.70	7.09	7.05
16.31	16.14	16.69	16.46	16.51	16.21
0.88	1.00	1.01	1.02	1.09	1.13
21.83	22.55	21.77	22.27	22.18	22.25
100.00	100.00	100.00	100.00	100.00	100.00

Preparation **8**, from the cow pea, was obtained by prolonged dialysis in water, and accordingly must be regarded as a very soluble globulin. Since preparations agreeing well in composition and general properties with it have been similarly obtained from other leguminous seeds by dialysis, it is our opinion that the above analyses represent a distinct globulin which can be only in part removed from its solutions by dialysis in water but is wholly separated, in a coagulated form, by dialysis in alcohol. This globulin is at present being further investigated and it is our intention to offer more respecting its properties in a subsequent paper.

THE AMOUNT AND PROPERTIES OF THE PROTEIDS OF THE MAIZE KERNEL.

By Thomas B. Osborne.

Some time since Prof. R. H. Chittenden and the writer published the results of an extended investigation of the proteids of this seed. (Amer. Chem. Jour., Vol. xiii, pp. 453, 529, and Vol. xiv, p. 20. Abstract in Report of this Station for 1891, p. 136.) In that paper no definite statements were made respecting the quantities of the various proteids found, nor were the properties of some of them as fully described as is now possible. For these reasons the results of some additional researches are here put on record.

The proteids of the maize kernel may be distinguished according to their solubilities as follows :

a. Proteid, soluble in pure water, having some of the properties of proteose.

b. Globulins, insoluble in pure water, but soluble in salt solutions.

c. Proteid, insoluble in water and salt solutions, but soluble in alcohol of 60 to 99 per cent.

d. Proteid matter, insoluble in water, salt solutions and alcohol, but soluble in dilute alkalies and acids.

a. Proteid soluble in Water.

If the substance precipitated from an aqueous extract of yellow corn meal by saturating with ammonium sulphate, is dissolved in water and the resulting solution dialyzed, the globulins extracted from the meal by aid of the soluble mineral constituents of the seed are *largely* precipitated. If these globulins are next *completely* removed by heating the solution to 80° and the filtrate therefrom be precipitated by an excess of alcohol, a small quantity of proteid is obtained having many of the reactions characteristic of proteose. A recent determination showed the presence of only 0.06 per cent. of this body. The quantity found was too small for a satisfactory study of the properties of the substance, but the following observations were made. Dissolved in a little water, only a very small quantity of undissolved substance remained, showing the nearly complete removal of proteid coagulable by alcohol.

The clear filtrate from this insoluble matter when diluted with an equal volume of distilled *water* gave a considerable coagulum on boiling, but when diluted with the same quantity of *ten per cent. salt solution* only an opalescence resulted on boiling. Nitric acid added to the aqueous solution gave a heavy precipitate which nearly all dissolved on warming, with the production of a strong yellow color, and reappeared on cooling. Saturation of its solution with sodium chloride gave a precipitate much increased by the addition of acetic acid, the filtrate from which was not further precipitated on adding nitric acid. The biuret reaction was violet, not rose red, as is usually given by proteoses. This color reaction, however, was probably modified by the color substance associated with the proteid. Sulphate of copper gave with solutions of this proteose only a turbidity. These reactions do not altogether agree with those given by the proteoses which result from the action of enzymes on native proteids. It is possible that future investigation will show that the so-called proteoses found in seeds belong to a different order of proteids from those usually formed by proteolysis.

In the paper already referred to, a substance is described as albumin which was obtained from solutions that were supposed to have been freed from globulin by prolonged dialysis, by adding thereto ten per cent. of sodium chloride and precipitating with very dilute hydrochloric acid. My recent experience in investigating plant proteids has shown that it is extremely difficult and in many cases impossible to completely precipitate all of the very soluble globulins by dialysis, and since the composition of the so-called albumin thus obtained agreed quite closely with that of a very soluble globulin separated from these solutions by prolonged dialysis, and also since the globulin and the so-called albumin coagulated at about the same temperature, I now feel convinced that the two substances are identical, the latter being a part of the globulin which was not precipitated by dialysis. In the former paper attention was called to the fact that this body, in some respects, resembled a globulin more closely than an albumin.

In the former paper were also described, as albumin, coagula obtained by concentrating solutions supposed to have been freed from globulin by dialysis and heating to 100°. It was there suggested that these coagula were probably alteration products of the proteids in solution. Since then "proteoses" from many different seeds have been found to yield coagula under similar conditions. It seems therefore quite certain that no true albumin exists in the maize kernel.

b. Proteids soluble in Saline Solutions.

If an aqueous extract of yellow corn meal is dialyzed for some time, a proteid, having the properties of a globulin, is precipitated which was found to have the following composition:

MAYSIN.

Carbon	52.68
Hydrogen	7.02
Nitrogen	16.76
Sulphur	1.30
Oxygen	22.24
	100.00

In our paper on the proteids of this seed, Prof. Chittenden and myself designated this globulin "maize myosin." Further study of plant proteids has shown that no sharp distinction can be drawn between plant myosin and plant vitellin, and I now propose to call this proteid *maysin*, in reference to the specific botanical name *mays*. This globulin readily loses its solubility in saline solutions after precipitation, and therefore the amount present in the seed was underestimated in our former paper. A recent determination in yellow corn meal gave 0.25 per cent.

This proteid is readily soluble in very dilute saline solutions so that it is completely extracted from corn meal by water. Dissolved in ten per cent. sodium chloride brine it is coagulated by heating to 70°.

After separating maysin from the extract of corn meal by dialysis, further prolonged dialysis throws down a small quantity of another globulin having the following composition:

MAIZE GLOBULIN.

Carbon	52.38
Hydrogen	6.82
Nitrogen	15.25
Sulphur	1.26
Oxygen	24.29
	100.00

This is the globulin which I now think to be identical with the "albumin" which was formerly obtained by precipitation with salt and acid. This proteid was found in very small amount, 25 kilos of fine meal yielding only 4.1 grams by dialysis and 3.4 grams by precipitation with salt and acid, that is 7.5 grams in all or 0.03 per cent. of the meal. This figure cannot be taken as representing quite accurately the total quantity present, for doubtless some was lost in consequence of the globulin becoming insoluble and some also through incomplete extraction. The total quantity, however, is exceedingly small, probably not more than 0.04 per cent.

Dissolved in ten per cent. sodium chloride solution, this globulin coagulates on heating to 62°.

If yellow corn meal, after thorough extraction with water, is treated with ten per cent. salt solution, a further quantity of globulin is extracted, which is readily precipitated by dialysis in well developed spheroids.

This globulin, formerly designated maize vitellin, agrees in composition and reactions and is, doubtless, identical with edestin which I have found in various seeds.

A recent determination of edestin in the seed of yellow corn showed the presence of but 0.06 per cent. The quantities obtained in the former investigation were 0.06, 0.10 and 0.10 per cent. The composition of this globulin is as follows:

MAIZE EDESTIN.

Carbon	51.43
Hydrogen	6.86
Nitrogen	18.06
Sulphur	0.86
Oxygen	22.79
	100.00

Edestin is much less soluble in saline solutions than the two globulins previously described, and for this reason is readily precipitated by dialysis or dilution. In warm dilute salt solutions it dissolves freely, but on cooling separates more or less completely, according to the temperature and the strength of the salt solution. Dissolved in ten per cent. sodium chloride brine, it is partly coagulated by heating above 90°, but even on boiling the coagulation is far from complete.

c. *Proteid soluble in Dilute Alcohol.*

Finely ground maize meal when extracted by hot alcohol loses 0.8 per cent. of nitrogen, equivalent to 5 per cent. of the characteristic proteid called maize-fibrin by Ritthausen, but first described by Prof. Gorham of Harvard University, in 1821, and named by him zein. The composition of zein, as shown by the average of nine closely agreeing analyses of as many preparations, is the following :

ZEIN.

Carbon	55.23
Hydrogen	7.26
Nitrogen	16.13
Sulphur	0.60
Oxygen	20.78
	100.00

Zein is in many ways a remarkable proteid. It dissolves abundantly in ethyl alcohol of 0.820 specific gravity, forming solutions which on evaporation in thin layers leave a perfectly transparent sheet of the proteid.

In *absolute* alcohol, as also in water, zein is wholly insoluble, but in mixtures of water and alcohol it dissolves to a greater or less extent, according to the proportions of the two liquids. It is most soluble in alcohol of from 85 to 95 per cent., and dissolves but little in alcohol of less than 50 per cent. Solutions of zein in diluted alcohol deposit the proteid on evaporation as the proportion of water in the solution increases. Strong alcoholic solutions of zein gradually coagulate to transparent jellies, which on long standing become hard and solid. In 95 per cent. methyl alcohol and in commercial propyl alcohol hydrate, zein dissolves readily.

In concentrated glycerin zein is freely soluble on heating to about 150° C., to solutions, which, when much is dissolved, solidify on cooling to 20°. In such solutions zein can be heated to 200° C. without undergoing any apparent change, for, on pouring them into water, the zein separates as a pulverulent precipitate readily and completely soluble in dilute alcohol.

In crystallized phenol, zein is readily soluble on warming, yielding solutions which leave on evaporation clear films of unchanged zein. In glacial acetic acid, zein dissolves in large proportion and is left, by evaporating the acid on a boiling water bath, in transparent films of apparently unchanged proteid, which readily dissolve in alcohol.

Strong solutions of zein in glacial acetic acid when poured rapidly into water give large coherent precipitates which retain all the original properties of the proteid; if the solution is dilute the zein is to a greater or less extent dissolved by the aqueous acetic acid.

In one-half per cent. sodium carbonate solution and in two-tenths per cent. hydrochloric acid, zein is wholly insoluble even when warmed for 24 hours at 40°.

In $\frac{1}{10}$ to 2.0 per cent. caustic potash solution, zein is very readily dissolved and even by heating to 40° for 24 hours in such solutions is not converted into "alkali-albumin," for the precipitate obtained by neutralizing solutions so treated is completely soluble in alcohol.

Alcoholic solutions of zein are not precipitated by tannin, picric acid, trichloracetic acid, lead acetate, silver nitrate, mercuric chloride, ferric chloride or potassio-mercuric iodide. Clear solutions mixed with silver nitrate dissolved in alcohol leave clear films when evaporated on glass, which gradually turn deep red on exposure to sunlight. When hydrochloric acid in considerable quantity is added to a solution of zein in ethyl alcohol containing much silver nitrate, no precipitate is produced until the mixture has stood for some time, when a turbidity gradually develops which is affected but slowly by light. If the mixture of acid, zein and silver nitrate is boiled it becomes turbid at once.

Zein treated with an alcoholic solution of ferric chloride shows no visible change, but if tested with potassium ferricyanide a deep blue solution is formed, showing that the ferric chloride is reduced at once.

Potassium ferricyanide added to the zein solution is not reduced even after standing some hours.

On digestion with pepsin in hydrochloric acid, zein is converted into proteoses and peptones.*

According to J. G. C. T. Kjeldahl (Bied. Centr. 1896, xxv, 197, from Forhandl. Skand. Naturfors 1892, 385–390) zein dissolved in 75 per cent. alcohol has a specific rotation of $(\alpha)_D - 35°$ and in glacial acetic acid $(\alpha)_D - 28°$.

d. Proteid matter soluble in Alkalies.

This was estimated as follows. One hundred grams of very finely ground maize meal which contained 1.54 grams of nitrogen were successively exhausted with two-tenths per cent. potash water and with alcohol. The dried residue weighed 77 grams and contained 0.1645 grams of nitrogen. Accordingly 1.3755 grams of nitrogen, including that of all the soluble proteids, had been extracted. This amount multiplied by the factor 6.25 gives the total quantity of soluble proteids, viz., 8.5969 grams. Subtracting therefrom the sum of the several proteids previously determined, viz., zein 5 grams, globulins 0.39 grams and proteose 0.06 grams, there remains 3.1469 grams of proteid insoluble in salt solutions and alcohol, but soluble in dilute potash water.

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* Chittenden, Medical Record, xlv, 487.

The alkaline extract obtained in estimating the quantity of this proteid was filtered perfectly clear, neutralized with acetic acid, the precipitate filtered out, washed thoroughly with water and extracted with hot alcohol to remove zein.

The proteid residue was then redissolved in dilute potash water, filtered clear and again precipitated by neutralization with acetic acid and thoroughly washed with water, with hot alcohol and finally with ether. After drying at 110° the preparation was analyzed with the following results:

Carbon	51.26
Hydrogen	6.72
Nitrogen	15.82
Sulphur	0.90
Oxygen	25.30
	100.00
Ash	2.38

The results of this analysis do not indicate that this substance has any relation to the other proteids already described. Owing to its insolubility in neutral fluids no characteristic reactions could be obtained, and accordingly nothing more was learned respecting it.

The foregoing statements show that 100 grams of the yellow corn meal contained approximately:

Proteid soluble in $\frac{2}{10}$ per cent. potash	3.15	grams	containing	15.82	per	cent.	N.	= 0.4983	grams.
Zein	5.00	"	"	16.13	"	"	"	= 0.8065	"
Very soluble globulin	0.04	"	"	15.25	"	"	"	= 0.0061	"
Edestin	0.10	"	"	18.10	"	"	"	= 0.0181	"
Maysin	0.25	"	"	16.70	"	"	"	= 0.0417	"
Proteose	0.06	"	"	17.00	"	"	"	= 0.0102	"
								1.3809	"
Nitrogen undissolved by dilute potash water								0.1645	"
Total								1.5454	
Nitrogen in meal by analysis								1.5400	
Mean percentage of nitrogen in Maize Proteids								16.057	

INDEX.

Page

Acid Phosphate 110

Acts concerning Commercial Fertilizers 83

Adzuki Bean, Proteid of the White Podded 387

Alternaria 267

Ammonia, Explanations Concerning 94

“ Sulphate of 103

Anisopteryx pometaria 234

Army Worm, Description of 236

Ashes, Coal, as a soil for Vegetation Experiments and Forcing-House Crops 178, 179, 205

“ Cotton Hull 154, 157

“ Lime Kiln 160

“ Wood 156, 159

Asparagus Beetle, Description of 244

“ Rust 281

Availability of Nitrogen in various Forms 200

Baker, H. J. & Bro. Special Corn Manure 85, 148, 149

“ Special Potato Manure 85, 146, 147

“ A. A. Ammoniated Superphosphate 85, 130, 131, 320

“ Special Tobacco Manure 85, 146, 147

“ Special Onion Manure 85, 146, 147

“ Harvest Home Fertilizer 85, 128, 129

“ Castor Pomace 85, 108

Bark Beetle, Description of 240

Beans, Amounts of Nitrogen, Phosphoric Acid and Potash in 334

Beetle, Asparagus, Description of 244

Berkshire Mills. Berkshire Complete Fertilizer 85, 128, 129

“ “ Ammoniated Bone Phosphate 85, 132, 133

“ “ Fish and Potash 85, 136, 137

“ Dissolved Rock Phosphate 110, 111

“ Ground Bone 116, 117

Blood, Dried 103

“ Nitrogen Availability of 190

Bone, Availability of Nitrogen of 204

“ “ In Different Grades of 197

“ Burned 118

Bone Manures 115–119

“ Method of Valuation of 98

“ Black, Dissolved 110

“ and Potash 122

Page
Bowker Fertilizer Co. Stockbridge Special Tobacco Manure..85, 146, 147, 320
“ “ “ Grain Manure 85, 148, 149
“ “ “ Grass Top Dressing and Forage Crop Manure................85, 146, 147
“ Stockbridge Special Potato and Vegetable Manure..............................85, 150, 151
“ Bowker's Potato Manure...............85, 148, 149
“ “ Hill and Drill Phosphate.......85, 130, 131
“ “ Farm and Garden Phosphate or Ammoniated Bone Fertilizer...85, 134, 135
“ “ Bone and Potash, Square Brand, 85, 122, 123
“ “ Tobacco Grower..........85, 148, 149, 320
“ “ Sure Crop Phosphate.........85, 132, 133
“ “ Market Garden Manure........85, 130, 131
“ “ Fairfield Fertilizer 140, 141
“ Tobacco Starter 320
“ Nitrate of Soda 85, 101
“ Dissolved Bone Black 85, 110, 111
“ Muriate of Potash 85, 113, 114
“ Castor Pomace 108
Bradley Fertilizer Co. Bradley's Original Coe's Superphosphate...... 86
“ “ Farmer's New Method Fertilizer, 86, 132, 133
“ “ High Grade Tobacco Manure...86, 146, 147
“ “ Eclipse Phosphate 86, 140, 141
“ “ Potato Fertilizer 86
“ “ Superphosphate 85, 132, 133
“ “ Potato Manure....85, 142, 144, 145, 152, 153
“ “ Complete Manure for Potatoes and Vegetables 85, 148, 149
“ “ Complete Manure for Top-dressing Grass and Grain...........85, 148, 149
“ “ Complete Manure for Corn and Grain.....................85, 148, 149
“ “ Pure Fine Ground Bone........85, 116, 117
“ “ Circle Brand, Ground Bone and Potash...................85, 140, 141
“ “ Fish and Potash, Anchor Brand..85, 140, 141
“ “ Fish and Potash, Triangle A Brand, 85, 134, 135
“ “ B. D. Sea Fowl Guano 85, 134, 135
“ High Grade Sulphate of Potash 112, 114
“ Muriate of Potash 113, 114
“ Nitrate of Soda.......................... 101
“ Potash Salts.............................. 113
Brassica alba.. 44
“ *nigra*.. 44
Burn of Tomato.. 232

Page
Burwell, E. E. Dried Blood and Meat ... 86, 120
“ Dissolved Bone Black ... 86, 110, 111
“ Double Sulphate Potash and Magnesia ... 86, 112, 114
“ Muriate of Potash ... 86, 113, 114
“ Nitrate of Soda ... 86, 101, 102
Butter, Law Regarding Adulteration of ... 70
Candy, Law Regarding Adulteration of ... 75
Canker Worms, Description of ... 234
“ Method of Destroying ... 235
Capsicum ... 32
Carnations, Experiments with, in Forcing-House ... 225
Castor Pomace, Analyses ... 108
“ as a Fertilizer for Tobacco ... 298
“ as a Tobacco Fertilizer, Comparison with Cotton Seed Meal ... 313
“ Availability of Nitrogen of ... 190
“ Cost of Nitrogen per pound in ... 108
Cayenne ... 32
Cercospora ... 273
“ *Nicotianœ* ... 272, 273, 274, 275
“ *Persica* ... 277
Cereal Foods ... 68
Cheese, Methods of Examination of ... 49
Chlorine, in the Ash of Tobacco, effect of Fertilizers on ... 332
Cladosporium carpophilum ... 269, 270
“ *fulvum* ... 207
Clark's Cove Fertilizer Co. Bay State Fertilizer ... 86, 132, 133
“ Bay State Fertilizer G. G. ... 86, 134, 135
“ Great Planet Manure ... 86, 124, 130, 131
“ Potato and Tobacco Fertilizer ... 86, 144, 145
“ King Philip Guano ... 86, 124, 134, 135
Cleveland Dryer Co. Cleveland Superphosphate ... 86
“ “ Potato Phosphate ... 86, 148, 149
“ “ Fertilizer ... 86, 136, 137
Clinton, Elbert. Ground Bone ... 86, 119
Coal Ashes as a Soil for Vegetation Experiments and Forcing-House Crops ... 178, 179, 205
Coe Co., The E. Frank. E. Frank Coe's High Grade Potato Fertilizer ... 86, 148, 149
“ E. Frank Coe's High Grade Ammoniated Bone Superphosphate ... 86, 132, 133
“ E. Frank Coe's Alkaline Bone Phosphate ... 86
“ “ Ground Bone and Potash, 86, 122, 123
“ “ Gold Brand Excelsior Guano, 86, 130, 131
Coffee ... 52
“ Adulterants of ... 52
“ Analyses of Samples of Adulterated ... 55

Page
Coffee, Compounds 57
“ Ground, Table of Analyses of Adulterated 58, 59
“ Imitation 54
“ Methods of Examination of 52
“ Substitutes 61
“ Unground, Examination of 53
Collier Castor Pomace, Nitrogen Availability of 190
Conglutin, a Proteid of Lupin Seed 342
“ from Blue Lupin 363
“ from Yellow and Blue Lupins, Conclusions Regarding 367
“ Yellow Lupin Globulin 357
Cooper's Glue Factory, Peter. Bone Dust 86, 116, 117
Corrosive Sublimate and Lysol. Comparative Value of in Preventing Scab 248, 251
Corrosive Sublimate, Lysol and Sulphur. Comparative Effects of in Preventing Scab on Clean Land 257, 261
Cotton Hull Ashes 154, 157
Cotton Seed Meal, Analyses of 103, 104, 105
“ as a Fertilizer for Tobacco 298
“ as a Tobacco Fertilizer, Comparison of, with Castor Pomace 313
“ Availability of Nitrogen of 190, 203
“ Hulled, Cost of Nitrogen per Pound in 106
“ Unhulled, Cost of Nitrogen per Pound in 107
Cow Pea, Proteids of 380
“ Conclusions Regarding 385
Cream of Tartar 66
Crioceris asparagi 244
Crocker Fertilizer and Chemical Co. Crocker's General Crop Phosphate 86, 124, 134, 135, 140, 141
“ Crocker's Universal Grain Grower 86, 152, 153
“ “ New England Tobacco Grower 86, 146, 147
“ “ Ammoniated Bone Superphosphate 86, 132, 133
“ “ Potato, Hop and Tobacco Phosphate 86, 150, 151
“ “ Ammoniated Wheat and Corn Phosphate 86, 152, 153
“ “ New Rival Ammoniated Superphosphate 86, 134, 135
“ “ Special Potato Manure 86, 146, 147
“ “ Vegetable Bone Superphosphate 86, 130, 131
“ “ Practical Ammoniated Superphosphate 86, 140, 141
“ “ Special Connecticut Tobacco Manure 86, 143
“ “ Pure Ground Bone 86, 116, 117, 119
Cucumbers, Forcing-House, Experiments with 226
Cumberland Bone Phosphate Co. Cumberland Superphosphate 87, 134, 135
“ Cumberland Potato Fertilizer 87, 142, 152, 153
“ “ Concentrated Phosphate 87, 124, 130, 131
“ “ Fertilizer 87, 134, 135

Page
Currant Stem Girdler, Description of 238
" Drawings of 239, 241
Cut Worms on Tobacco Land, Method of Exterminating 305
Darling Fertilizer Co., The L. B. Potato and Root Crop Manure 87, 144, 145
" Animal Fertilizer 87, 130, 131
" Garden and Lawn 87, 140, 141
" Tobacco Grower 87, 142, 144, 145
" Fine Bone 87, 116, 117, 119
" Animal "G." 87, 128, 129
" Tankage 120, 121
Dealers in Fertilizers, Duties of 82
Dendroline, Damage Resulting from Use of 283
Dissolved Bone Black 110, 111
Dissolved Rock Phosphate 110, 111
Downs & Griffin. Ground Bone 87, 116, 117, 119
Drugs and Medicines, Law Regarding Adulteration of 78
Eastern Farm Supply Association. Carteret Manure for General Use 87, 128, 129
Edestin of Maize 394
Ellsworth, F. Shoemaker's Swift Sure Bone Meal 87, 116, 117
" " " Superphosphate 87, 126, 128, 129
Exoascus mirabilis 281
Fees, The Amount of Analysis 81
Fertilizer Elements, Trade Value of 96
Fertilizer Law, Observance of 85
" of Connecticut 81
Fertilizer Manufacturers. List of those Complying with Fertilizer Law 85
Fertilizers, Agricultural Value of 99
" Analyses of 93
" Analyzed, Classified List of 100
" Commercial 81
" Effect of, on Composition of Tobacco 322
" Entered for sale in Connecticut, number of 81
" Explanations Concerning the Analysis of 94
" for Forcing House Crops, On the Use of 205
" Market Review of 163
" Proper Use of Tables of Analyses of 169
" Sampling and Collection of 92
" Valuation of, Explanations Concerning 96
Fertilizing Materials, Wholesale Prices of 168
Fish as a Fertilizer for Tobacco 299, 314
" Dry Ground 120
" Nitrogen Availability of 190
Food, Law Regarding Adulteration of 78
Food and Drugs, Law Regarding Adulteration of 70
Food Products, Adulteration of, Defined 2

Page
Food Products, Law Concerning Manufacture and Sale of ---------- 2
" Misbranding of, Defined---------- 2
" Report on---------- 1
" Summary of Examinations of---------- 69
Forcing-House, Description of---------- 229
Forcing-House Crops: On the Use of Commercial Fertilizers for ---------- 205
Fruit Bark Beetle, Description of---------- 240
Fruit Bark Beetle, Drawings of---------- 243
Globulin, Effect of Minute Quantities of Acid on Solubility of ---------- 369
" of Maize ---------- 393
" of Yellow Lupin---------- 349
" of Sunflower---------- 377
Grapes, So-called Shelling of---------- 278
Great Eastern Fertilizer Co. Great Eastern General Fertilizer---------- 87
" Great Eastern Northern Corn Special Fertilizer---87, 150, 151
" " Soluble Bone and Potash ----------87, 134, 135
" " Vegetable, Vine and Tobacco ----------87, 150, 151
" " Garden Special ----------87, 128, 129
Hartford Fertilizer Co. Ground Bone----------87, 116, 117
Helianthotannic Acid---------- 376
Heliothrips cestri---------- 244
Home Mixtures----------154, 155
Honey---------- 15
" Strained---------- 17
" Tables of Analyses of ---------- 18–20
" Table of Analyses of Comb---------- 16
Horn and Hoof, Ground---------- 103
" Nitrogen Availability of---------- 190
Insect Notes---------- 234
Jefferds, John G. Ground Bone----------87, 119
Kelsey, E. R. Bone, Fish and Potash---------- 87, 128, 129
Lard ---------- 22
Lard Adulterations---------- 22
" " Methods of Detecting---------- 23
" Compounds and Imitations, Table of Analyses of---------- 29–31
" from Connecticut Market, Examination of ---------- 24
" Table of Analyses of Pure---------- 25–27
Law Regarding Adulteration of Butter---------- 70
" Candy---------- 75
" Drugs and Medicines ---------- 78
" Food---------- 78
" Food and Drugs---------- 70
" Liquors ---------- 78
" Milk ---------- 73
" Molasses---------- 74
Law Regarding Fertilizers ---------- 81
" Manufacture and Sale of Vinegar ---------- 76

Page
Leach, J. D., Ground Bone 119
" Tankage 120, 121
Leaf Blight of Melons 267
Leaf Curl of Plum, Treatment for 281
Leather, Dissolved, Nitrogen Availability of 190
" Preparations of 109
" Raw, Nitrogen Availability of 190
" Roasted, Nitrogen Availability of 190
" Steamed, Nitrogen Availability of 190
Legumin in Lupin Seed 343
Leucania unipuncta 236
Lime, in the Ash of Tobacco, Effect of Fertilizers on Quantity of 331
Lime Kiln Ashes 160
Linseed Meal 107
" as a Fertilizer for Tobacco 299, 313
" Availability of the Nitrogen of 190
" Cost of Nitrogen per Pound in 108
Liquors, Law Regarding Adulteration of 78
Lister's Agricultural Chemical Works. Standard Superphosphate of Lime 87, 130, 131
" Success Phosphate 87, 130, 131
" Special Potato 87, 143
" Animal Bone and Potash 87, 134, 135
Lowell Fertilizer Co. Lowell Bone Fertilizer 87, 128, 129
" " Animal Fertilizer 87, 140, 141
" " Potato Phosphate 87, 143, 146, 147
" " Vegetable and Vine 87, 143
" " Lawn Dressing 87, 143
" " Tobacco Fertilizer 87, 143
Luce Bros. Giant's Neck Superphosphate 87, 130, 131
" Pure Dry Fish Guano 87, 120, 122
" Bone, Fish and Potash 87, 140, 141
Ludlam, Frederick. Cecrops or Dragon's Tooth 87, 140, 141
" Cereal Brand 87, 140, 141
Lupin, Blue 362
" Globulin of 363
Lupin, Globulin of 349
" Proteids Soluble in Saline Solutions 347
" Seeds, Proteids of 342
" Yellow, Globulin of 357
" " Proteids of 343
" " Soluble, in Dilute Alkalies 361
Lupinus angustifolius 342
" *luteus* 342
Lyman, Chas. E. Corn Manure 87, 144, 145
" Potato Manure 87, 144, 145
Lysol as a Germicide 246

Page

Lysol and Corrosive Sublimate, Comparative Value of, in Preventing Scab.... 248, 251
" Corrosive Sublimate and Sulphur, Comparative Effect of, in Preventing Scab on Clean Land.... 257, 261
Macrosporium tabacinum 276
" *tomato* 208
Magnesia, in the Ash of Tobacco, Effect of Fertilizers on Quantity of.... 332
Maize, Availability of Nitrogen to 182
" Composition of Kernels and Stover in Experimental Crops of.... 338
" Dry Matter of, in Fertilizer Experiments 335
" Edestin.... 394
" Enrichment or Impoverishment of Soil by Nine Years Cropping with.... 341
" Globulin.... 393
" Gross Yield of, in Fertilizer Experiments.... 335
" Kernel, Amounts and Properties of Proteids of 391
" " Amount of Proteids in 397
" Proteids Soluble in Alkalies.... 396
" " in Dilute Alcohol.... 394
" " in Saline Solutions.... 393
" " in Water.... 391
" Observations on the Growth of, Continuously on the Same Land 335
" Percentage of Kernels, Cobs and Stover in Dry Matter of.... 336
" Yield of Dry Matter and Shelled Corn for Nine Years Continuous Cropping with 341
" Yield of Food Ingredients in Crops of.... 337
Manure, Comparative Effect of Fresh and Composted, in Favoring Potato Scab.... 257
" Stable, as a Fertilizer for Tobacco.... 300, 315
Mapes' Formula and Peruvian Guano Co. Potato Manure 88, 148, 149
" Complete Manure for General Use 88, 130, 131
" Fruit and Vine Manure.. 88, 148, 149
" Corn Manure.... 88, 148, 149
" Fine Bone Dissolved.. 88, 128, 129
" Complete Manure for Light Soils or Vegetable Manure.... 88, 130, 131
" Tobacco Starter.. 88, 148, 149, 320
" Grass and Grain Spring Top-Dressing.... 88, 146, 147
" Complete Manure, "A" Brand 88, 130, 131
" Tobacco Manure, Wrapper Brand.... 88, 146, 147, 320
" Seeding Down Manure. 88, 144, 145
" Dissolved Bone Black.... 110, 111

Page
Mapes' Formula and Peruvian Guano Co. High Grade Sulphate of Potash 112, 114
" Double Sulphate of Potash 112, 114
" Muriate of Potash.......113, 114
" Nitrate of Soda 101
Maple Sugar.. 7
" Tables of Analyses of 12
Maple Syrup.. 7
" Tables of Analyses of 9–11
Martius Yellow, an Adulterant of Mustard 44
Maysin.. 393
Medicines, Law Regarding Adulteration of 78
Melons, A Leaf Blight of 267
Miles, G. W. Fish Guano 88, 120, 122
" IXL Ammoniated Bone Superphosphate........88, 128, 129
" "Ceres" Complete..............................88, 127
Milk, Examination of 63
" Law Regarding Adulteration of 73
" Standard 64
Miller, G. W. Ground Bone 88
" Unexcelled Phosphate.......................88, 128, 129
Milsom Rendering & Fertilizer Co. Buffalo Fertilizer 88, 132, 133
" Potato, Hop and Tobacco Phosphate..................88, 152, 153
" Vegetable Bone Fertilizer ..88, 132, 133
" Wheat, Oats and Barley Phosphate 88, 152, 153
" Potato, Hop and Tobacco Phosphate, Long Island Brand 88, 143
" Special Potato Fertilizer....88, 150, 151
" Bone Meal 88, 116, 117
" Erie King................88, 136, 137
" Buffalo Guano 88, 136, 137
" Cyclone Bone Meal 88, 116, 117
" Dissolved Bone and Potash..88, 122, 123
" Dissolved Bone............88, 110, 111
" Buffalo Fertilizer (Long Island Brand)................86, 140, 141
Molasses, Law Regarding Adulteration of 74
Monroe, Lalor & Co., "All Soluble"......................140, 141
Muck, Swamp 162
Mustard 44
" Analyses of Adulterated 48
" Adulterations of 44
" Colored, Table of Analyses of........................ 47
" Methods of Examination of Samples 45
" Pure, Table of Analyses of 46
" Seed Cake 109

Page
National Fertilizer Co. Chittenden's Complete Fertilizer 88, 124, 132, 133
“ Ammoniated Bone Phosphate 88, 125, 134, 135
“ Fish and Potash 88, 132, 133
“ Market Garden 88, 130, 131
“ Potato Phosphate 88, 143, 144, 145
“ Fine Ground Bone 88, 116, 117
Niagara Fertilizer Works. Niagara Corn and Wheat Producer 88, 143
“ “ Triumph 88, 140, 141
“ “ Grain and Grass Grower 88, 152, 153
“ “ Potato, Tobacco and Hop Fertilizer 88, 152, 153
Nicotine, Method of Determining 323
Nitrate of Soda, Analyses of 101
“ as a Fertilizer for Tobacco 299, 312
“ Availability of Nitrogen of 203
“ Cost of Nitrogen per pound in 101
“ Nitrogen Availability of 190
Nitric Acid, Explanations Concerning 94
“ in Leaf Tobacco 329
Nitric Nitrogen, Market Quotations of 163
Nitrogen, Ammonic, Market Quotations of 163
“ Availability Determined by Maize Cultures 178
“ Effect on Quality of Tobacco Crop of the Quantity Used 310
“ Explanations Concerning Free 94
“ in Bone of Different Degrees of Fineness, Availability of 197
“ in Various Forms, Experiments on Availability of 178
“ Explanations Concerning Organic 94
“ Market Quotations of 163
“ Method of Determining Availability of, in Vegetation Experiments 186
“ of Bone, Availability of 204
“ of Blood, Availability of 190
“ of Castor Pomace, Availability of 190
“ of Cotton Seed Meal, Availability of 190, 203
“ of Fish, Availability of 190
“ of Leather, Availability of 190
“ of Linseed, Availability of 190
“ of Nitrate of Soda, Availability of 190, 203
“ of Tankage, Availability of 190
“ Organic, Market Quotations of 163
“ Solubility in Chemical Reagents 191
“ Solubility in Pepsin Solution 193
Nuhn, Frederick. Self-Recommending Fertilizer 88, 116, 117
Olds & Whipple. O. & W. Special Phosphate 88, 132, 133
Pacific Guano Co. Soluble Pacific Guano 88, 125, 134, 135
“ Special Potato Manure 88, 150, 151
“ Nobsque Guano 88, 136, 137
“ High Grade General Fertilizer 88, 126, 128, 129

Page
Packers' Union Fertilizer Co. Potato Manure 89, 148, 149
“ Gardeners' Complete Manure 89, 128, 129
“ Animal Corn Fertilizer 89, 148, 149
“ Oats and Clover Fertilizer 89, 152, 153
“ Universal Fertilizer 89, 130, 131
Paleacrita vernata 234
Parks, C. D. Bone Meal 89, 116, 117
“ Nameless Fertilizer 89, 132, 133
“ Potato Manure 89, 146, 147
Peach Scab, Probable Winter Condition of 269
Peas, Amounts of Nitrogen, Phosphoric Acid and Potash in 334
Peck Bros. Pure Ground Bone 89, 116, 117
Pepper 32
“ Adulteration of 33
“ Black, Adulterated, Table of Analyses of 39–40
“ Suspected of Adulteration 41
“ Methods of Examination of 34
“ Nature of 32
“ Pure Black, Table of Analyses of 35–37
Pepsin Solution, Solubility of Nitrogen in 193
Phaseolin 388
Phaseolus radiatus 387
“ *vulgaris* 388
Phosphate, Odorless 110
Phosphatic Materials, Market Quotations of 164
Phosphoric Acid, Available, Explanations Concerning 95
“ Citrate-Soluble, Explanations Concerning 95
“ Insoluble, Explanations Concerning 95
“ Water-Soluble, Explanations Concerning 94
Phosphorus, Explanations Concerning 94
Phylloecus flaviventris 238–239
Piper longum 32
“ *nigrum* 32
Plum, Treatment for Leaf Curl of 281
Plumb & Winton Co. Ground Bone 89, 116, 117
Potash and Magnesia, Double Sulphate of 112, 114
Potash, Comparative Effect of Different Forms of, on Tobacco Crop 317
“ Double Sulphate, Review of Market Quotations of 164
“ High Grade Sulphate, Review of Market Quotations of 165
“ Effect of Different Forms of, on Tobacco 300
“ Explanations Concerning 96
“ Effect of Smaller Quantities in a Tobacco Fertilizer 319
“ High Grade Sulphate of 112, 114
“ in the Ash of Tobacco, Effect of Fertilizers on Quantity of 330
“ Market Quotations of 164
“ Muriate, Review of Market Quotations of 164
“ Muriate of 113, 114
“ Phosphate of 113

Page
Potash Salts 113
Potassium, Explanations Concerning 96
Potato Scab, Experiments on the Prevention of 245
" Susceptibility of Other Root Crops to 263, 266
Pouleur, August. Pure Bone Meal 89, 119
Preston Fertilizer Co. Bone 89
" Superphosphate 89, 128, 129
" Potato, Hop and Onion Fertilizer 89, 146, 147
Proteid of the White Podded Adzuki Bean 387
" Extracted from Yellow Lupin, Amount of 345
Proteids of Cow Pea 380
" Lupin Seeds 342
" Lupin Soluble in Saline Solutions 347
" Lupin Soluble in Water 345
" Maize Kernel, Amounts and Properties of 391
" Sunflower Seed 374
Puccinia Asparagi 274, 280, 281
Quinnipiac Co. Quinnipiac Phosphate 89, 132, 133
" " Potato Manure 89, 150, 151
" " Market Garden Manure 89, 128, 129
" " Ammoniated Dissolved Bone 89, 128, 129
" " Fish and Potash, Crossed Fishes 89, 134, 135
" " Fish and Potash, Pequot 89, 128, 129
" " Pine Island 89
" " Havana Tobacco Fertilizer 89, 146, 147
" " Grass Fertilizer 89, 152, 153
" " Corn Manure 89, 148, 149
" " Pure Bone Meal 89, 116, 117
" " Dry Ground Fish 89, 120, 122
" Tankage 89, 120, 121
" Muriate of Potash 89, 113, 114
" Sulphate of Potash 89, 112, 114
" Nitrate of Soda 89, 101
" Sulphate of Ammonia 89, 103
" Dissolved Bone Black 89
" Dissolved Rock Phosphate 110, 111
" Connecticut Valley Orchard Co.'s Fertilizer 140, 141
Radishes, Analyses of 224
" Forcing-House Experiments with 222
Rain Fall in Tobacco Field 306
Read Fertilizer Co. Read's Standard 89, 134, 135
" Fish and Potash 89, 134, 135
" Vegetable and Vine 89, 152, 153
" Practical Potato Special 89, 152, 153
Red Seal Castor Pomace, Nitrogen Availability of 190
Report on Food Products 1
Ricinus communis 375

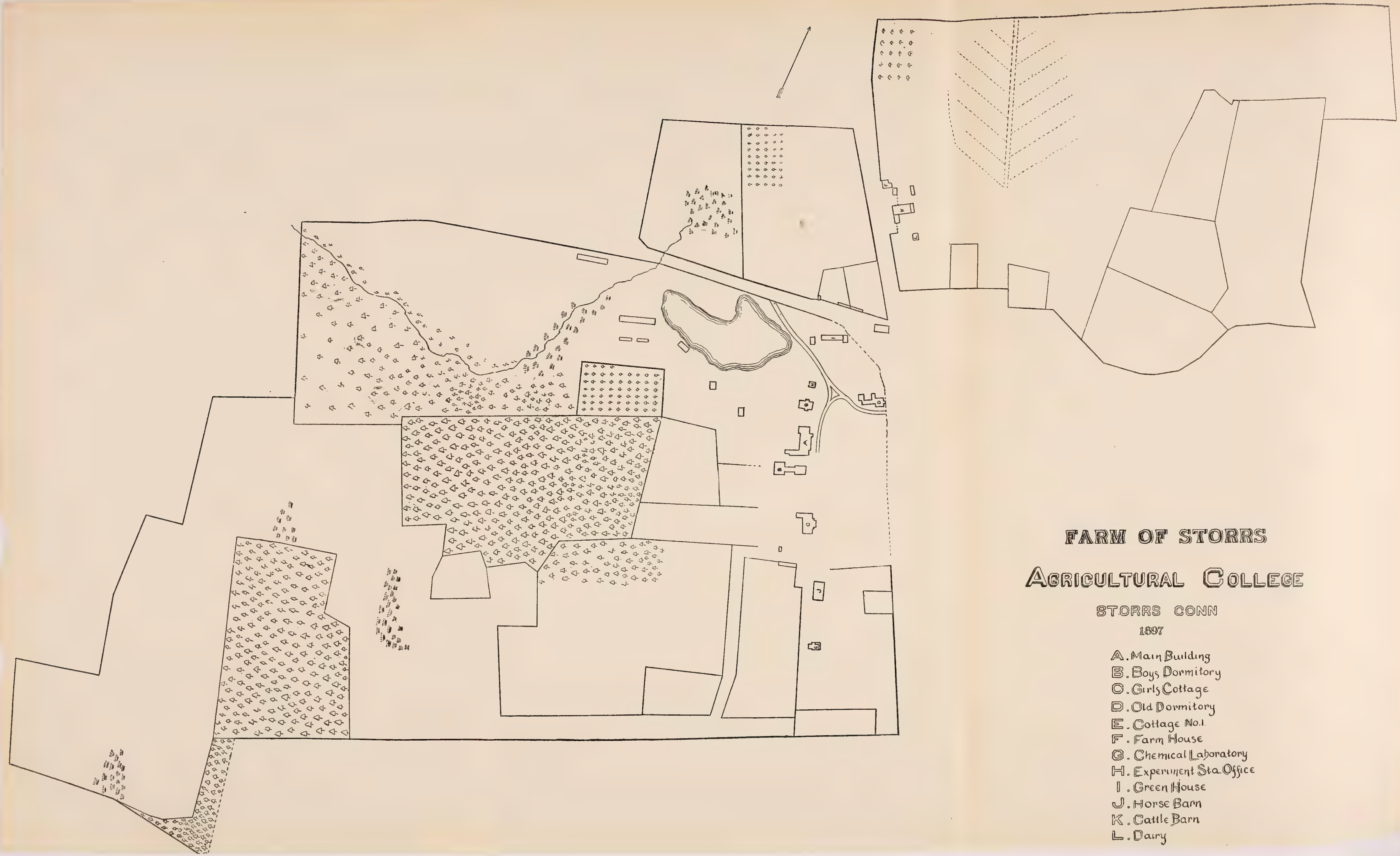
Page

Rogers & Hubbard Co. The Rogers & Hubbard Co's Pure Raw Knuckle Bone Flour ... 89, 116, 117, 118
“ The Rogers & Hubbard Co's Pure Raw Knuckle Bone Meal ... 89, 116, 117, 118
“ The Rogers & Hubbard Co's Strictly Pure Fine Bone ... 89, 116, 117, 118
“ The Rogers & Hubbard Co's Oats and Top-Dressing ... 89, 144, 145
“ The Rogers & Hubbard Co's Soluble Potato Manure ... 89, 144, 145
“ The Rogers & Hubbard Co's Soluble Tobacco Manure ... 89, 142, 144, 145
“ The Rogers & Hubbard Co's Grain and Grass Fertilizer ... 90, 144, 145
“ Fairchild's Corn Formula and General Crops ... 90, 144, 145
“ The Rogers & Hubbard Co's Fruit Fertilizer ... 90, 144, 145
Rogers Mfg. Co. Potato Manure ... 90, 146, 147
“ Corn Manure ... 90, 144, 145
“ Complete Manure ... 90, 130, 131
“ Pure Ground Bone ... 90, 116, 117
“ Top-Dressing and Oat Manure ... 90, 144, 145
“ Tobacco Manure ... 90, 142, 143, 146, 147, 148, 149
“ Grass and Grain Manure ... 90, 144, 145
“ Burned Bone ... 118
Root Galls on Tomatoes ... 220
Russia Cement Co. Essex XXX Fish and Potash ... 90, 128, 129
“ “ Manure for Corn and Grain ... 90, 144, 145
“ “ Manure for Potatoes and Roots ... 90, 144, 145
Rust of Asparagus ... 281
Sanderson, L. Old Reliable Superphosphate ... 90, 128, 129
“ Formula A. ... 90, 130, 131
“ Pulverized Bone and Meat ... 90, 120, 121
“ Blood, Bone and Meat ... 90, 120, 121
“ Fine Ground Bone ... 90, 116, 117, 119
“ Muriate of Potash ... 90, 113, 114
“ High Grade Sulphate of Potash ... 90, 112, 114
“ Sulphate of Potash ... 90, 112, 114
“ Nitrate of Soda ... 90, 101
“ Sulphate of Ammonia ... 90, 103
“ Dissolved Bone Black ... 90, 110, 111
“ Tobacco Fertilizer ... 321
San José Scale in Connecticut, Spread of ... 282
Scab of Peach, Probable Winter Condition of ... 269
“ of Potato, Experiments on the Prevention of ... 246
“ Susceptibility of Root Crops to ... 263, 266
Scald of Tomato ... 232

Page
Scolytus rugulosus 240, 283
Shelling of Grapes 278
Special Manures 142–153
" Cost and Valuation of 143
" Explanation Concerning Valuation of 98
" Guarantees of 142
Sperry & Barnes, New Haven. Tankage 120, 121
Sphaceloma ampelinum 269
Standard Fertilizer Co. Standard Fertilizer 90, 134, 135
" Potato and Tobacco Fertilizer 90, 143, 152, 153
" Guano 90
" Fine Ground Bone 90
" Complete Manure 90, 132, 133
Stem Girdler, Currant, Description of 238
Sugar 13
" Tables of Analyses of 13
Sugars, Method of Testing 7
Sulphate of Ammonia 103
" Cost per Pound of Nitrogen in 103
Sulphur, Comparative Value of, in Preventing Scab on Infested Land 252, 257
Lysol and Corrosive Sublimate, Comparative Effect of, in Preventing Scab on Clean Land 257, 261
Sulphuric Acid, in the Ash of Tobacco, Effect of Fertilizers on 332
Sunflower Globulin 377
Sunflower Seed, Proteids of 374
Superphosphates, Explanations Concerning Valuation of 98
" Nitrogenous, and Guanos 123–141
" " Cost and Valuation of 127
" " Guarantees of 123
" " Valuation of 138
Syrups, Method of Testing 7
" Table of Analyses of 14
Tankage 118, 121
" Method of Valuation of 98
" Nitrogen Availability of 190
Taylor & Brush. Tankage 120, 121
" Bone 119
" Double Sulphate of Potash 112, 114
" Dissolved Rock Phosphate 110, 111
" Nitrate of Soda 101, 102
Thrips 244
Tobacco, Analyses of Air Dry Leaf 325
" Analyses of the Crude Ash of 327
" Analyses of Pure Ash of 328
Tobacco Ash, Effect of Fertilizers on Composition of 330
Tobacco Crop of 1895, Fire-Holding Capacity of 296
" Judgment of the Expert on 286
" Number of Fermented Leaves to the pound 297

Page
Tobacco Crop of 1896 302
" Fire-Holding Capacity of 308
" Harvesting, Curing, etc. 306
" Notes During Growth 305
" Number of Pole-cured Leaves to the Pound 309
" Per Cent. of the Four Grades 308
" Weight in Pounds 307
Tobacco Crop Raised with Fertilizers made by Manufacturers 320
Tobacco Dust 161
Tobacco, Effect of Fertilizers on Composition of 322
" Experiments in Growing, Season of 1895 285
" Methods of Analysis of 323
" On a Destructive Fungous Disease of 273
" Shrinkage During Fermentation of 285
" Some Results of Experiments with Fertilizers on 310
" Stems 161
" as a Fertilizer for Tobacco 300
Tobacco Leaves, Number of Pole-Cured to Pound 309
Tomato Blight, Burn or Scald of 232
" Cultures in Coal Ashes and Peat, Fertilizer Ingredients taken from the Soil by 212, 217
" Cultures in Coal Ashes and Peat, Yield of 210, 211, 214, 216
" Cultures in Compost, Yield of 219
Tomatoes, Comparison of Crops Raised in Compost and in Ashes 218
" Experiments with 205
" On the Use of Commercial Fertilizers for, Summary of Results 220
" Quantities of Nitrogen, Phosphoric Acid and Potash Taken by Forcing-House Crops of 220
" Quantities of Nitrogen, Phosphoric Acid and Potash Taken by the Fruit 221
" Root Galls on 220
Trade Value, Explanations Concerning 96
Turmeric, an Adulterant of Mustard 44
Unit of Ammonia, Meaning of 165
Valuation of a Fertilizer, How Obtained 98
Valuation of Fertilizers, Explanations Concerning 94, 96
" Uses and Limitations of 98
Vigna Catjang 380
Vignin 383
Vinegar, Law Regarding the Manufacture and Sale of 76
Walker, Stratman & Co. Four Fold 90, 136, 137
" Potato Special 90, 152, 153
" Smoky City 90, 132, 133
" Butchers' Bone Meal 90, 119
" Pure Raw Bone Meal 90, 119
" Big Bonanza 90, 134, 135

Page
Wheeler & Co., M. E. High Grade Fruit Fertilizer 90, 150, 151
" Grass and Oats 90, 152, 153
" Potato Manure 90, 150, 151
" High Grade Corn 90, 148, 149
" Superior Truck 90, 130, 131
" Electrical Dissolved Bone 90, 110, 111, 118, 119
White Pepper, Table of Analyses of 43
Wilcox Fertilizer Works. Wilcox Potato, Onion and Tobacco Manure 90, 144, 145
" Wilcox Ammoniated Bone Phosphate 90, 130, 131
" " Complete Bone Superphosphate 90, 128, 129
" " High Grade Fish and Potash 90, 128, 129
" " Fine Ground Bone 119
Wilkinson & Co., Economical Bone Fertilizer 91, 136, 137
Williams & Clark Fertilizer Co. Americus High Grade Special 91, 146, 147
" " Ammoniated Bone Superphosphate 91, 132, 133
" " Potato Phosphate 91, 150, 151
" " Fine Wrapper Tobacco 91, 146, 147
" " Corn Phosphate 91, 152, 153
" Royal Bone Phosphate 91, 126, 134, 135
" Fish and Potash 91, 132, 133
" Grass Manure 91
" Pure Bone Meal 91, 116, 117
" Americus Potato and Tobacco Fertilizer 91, 150, 151
" Dry Ground Fish Guano 91, 122
" "Fertilizer" 140, 141
Wood Ashes 156, 159
Zein 395



FARM OF STORRS

AGRICULTURAL COLLEGE

STORRS CONN

1897

A. Main Building
B. Boys Dormitory
C. Girls Cottage
D. Old Dormitory
E. Cottage No. 1.
F. Farm House
G. Chemical Laboratory
H. Experiment Sta. Office
I. Green House
J. Horse Barn
K. Cattle Barn
L. Dairy

ANNUAL REPORT

OF THE

TRUSTEES

OF THE

Storrs Agricultural College,

AT

MANSFIELD, CONN.
(P. O. STORRS, CONN.)

For the period embraced within the first day of December, 1895, and November 30, 1896.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY.

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1897.

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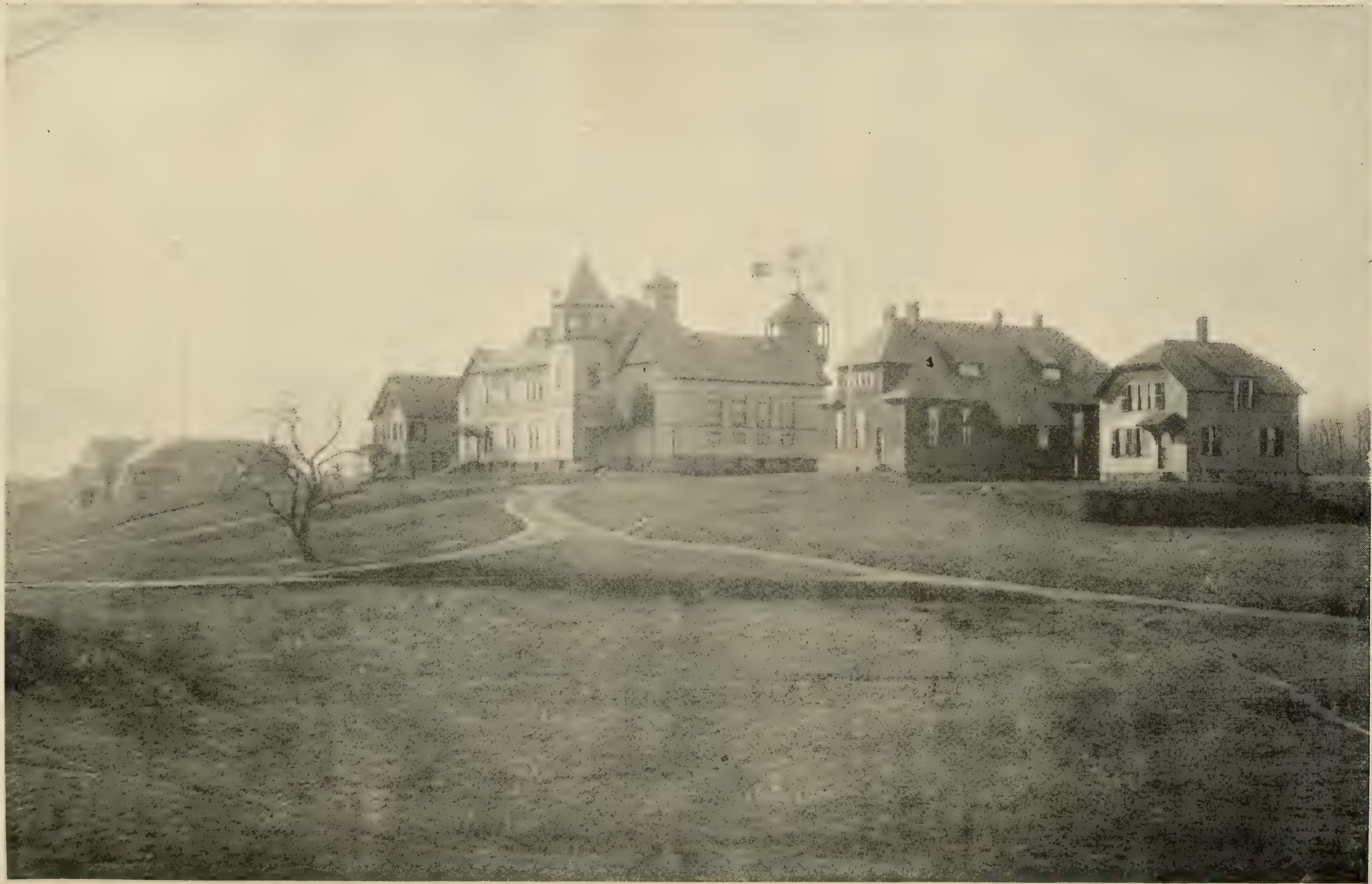
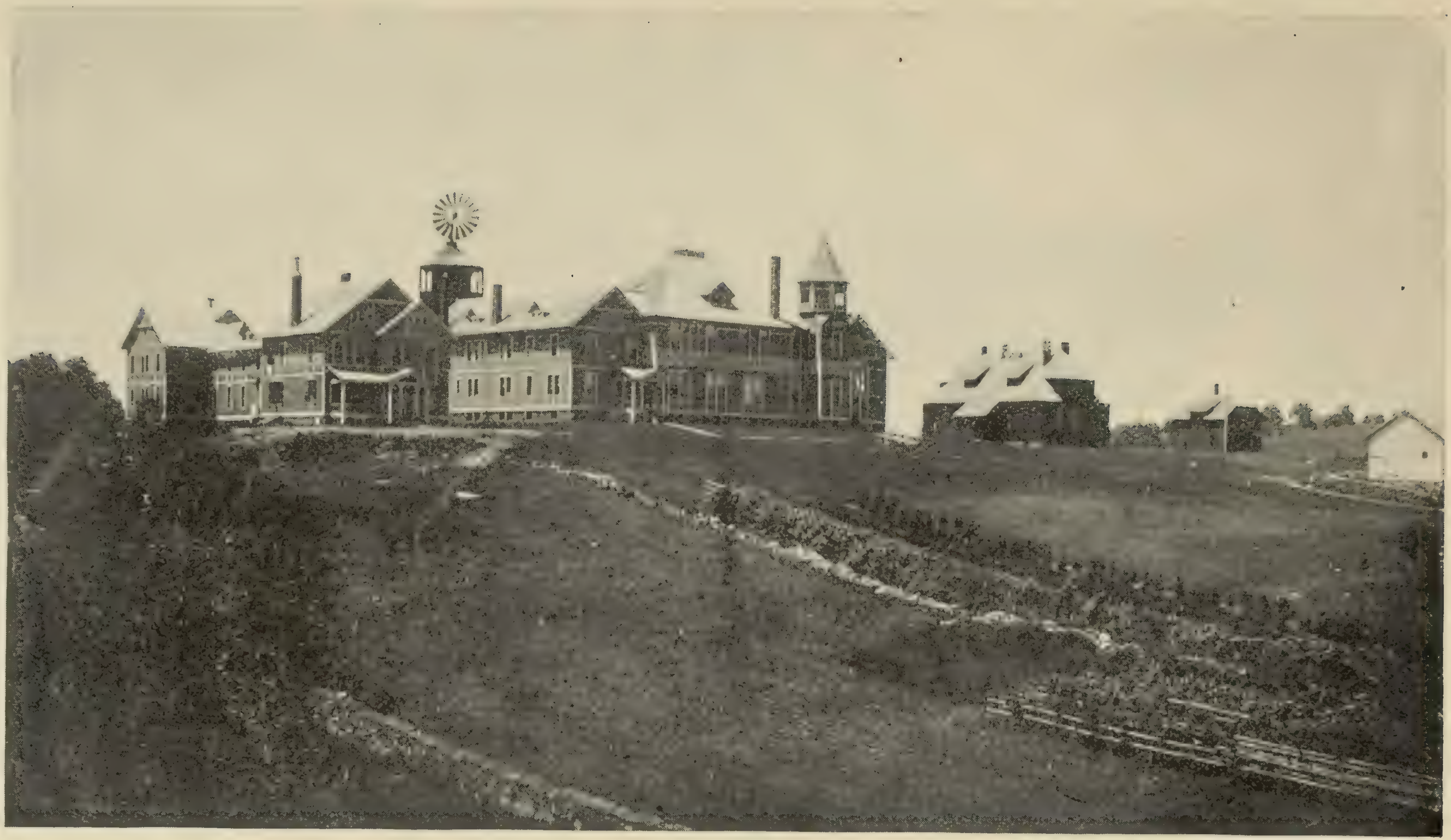


GENERAL VIEW OF COLLEGE BUILDINGS, 1896



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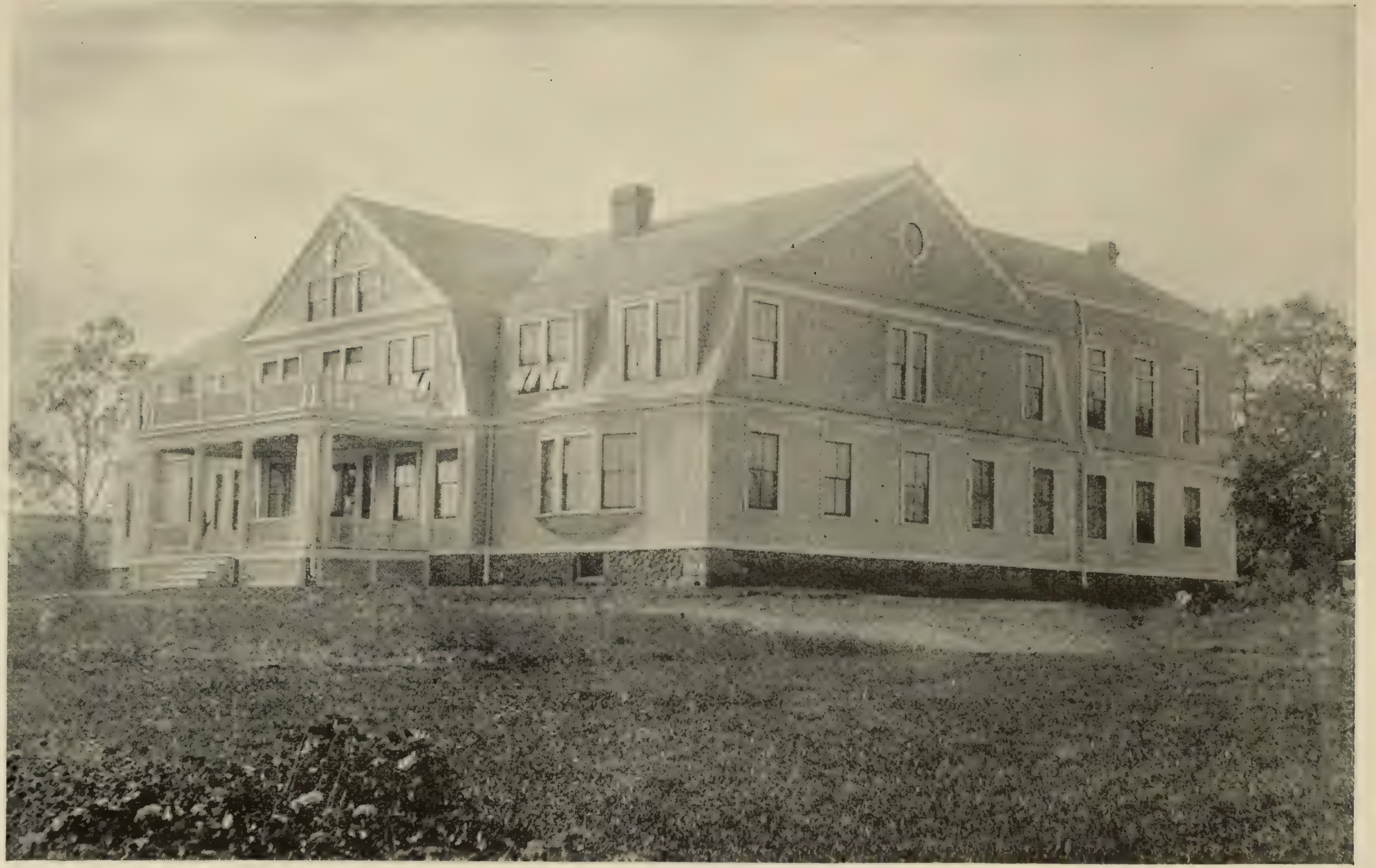


GROVE COTTAGE

State of Connecticut.

REPORT.

To His Excellency O. Vincent Coffin, *Governor of Connecticut:*

It will be unnecessary to repeat the history of the establishment of the college as contained in our last annual report. We offer only an account of the progress made in accomplishing the plans therein suggested, and the necessities of the college demanded for its fuller development and growth.

The college gained possession, by purchase, of the Crane farm in the opening season of 1896, as referred to in the last report, thus securing not only a tract of valuable agricultural land, but a good location for the ladies' dormitory and other buildings. There is also a large new barn which is now occupied as a horse barn and carriage house. This allowed the removal, from the college campus, of the old barns previously used for this purpose. The lawn thus cleared of these unsightly and misplaced buildings has been graded and seeded, thus making a substantial beginning towards beautifying the college grounds.

One of this group of buildings, removed to the shore of the lake, is converted into an ice-house ; another removed and refitted furnishes a tool-house for the Horticultural department, and the remaining material has been utilized in the construction of poultry houses in the inclosure devoted to that business.

The ladies' cottage, Grove Cottage, was dedicated with appropriate ceremonies, September 8th, and occupied at the beginning of the Fall term. This is located about two hundred feet southerly from the president's residence and boys' dormitory. It is two stories, with a basement or cellar under the whole. The main building is 36 x 44 feet, with a wing 28 x 24 feet. A place is reserved for another wing, if necessary.

The first floor has a reception hall, parlor, dining-room, kitchen, matron's rooms, sewing-room, and two other rooms for teachers or guests. The second story contains the gymnasium and twelve rooms for students designed for two in a room, and servants' rooms.

Bathrooms are provided on both floors, and there are ample clothes closets in all the sleeping rooms. At present, the furnishing of the gymnasium is incomplete.

For heating, we have a "Mills sectional boiler," the same as in the other buildings, and there proved satisfactory. Water is supplied from the tank in the tower to which it is elevated by a pump, operated by wind power, from the bored well. To provide against any casual failure of this power or excessive demand for water, an eight horse-power portable engine has been secured for use in the dairy department, also for pumping water. This building is designed not only for the accommodation of the lady teachers and pupils, but to develop the social life of the college — to furnish a place where all the pupils may meet only under the same restraints as in well-ordered Christian homes. This marks an era in the growth of the college from which the most happy results are anticipated, as giving facilities for instruction in the social relations which, as good citizens, all the students of the college are expected to exemplify and encourage.

The whole cost of the building and furnishing slightly exceeded the twelve thousand dollars appropriated by the state, and this has been paid from other funds. James A. Hiscox, architect, Norwich; Arnold & Hiscox, builders, Norwich.

Urgent necessity has obliged us to anticipate legislative action, and begin a dairy building by erecting a wing for immediate use, the main structure to follow as soon as means are provided. This wing is one story, built of rough stone laid in cement mortar with cement floor, 36 x 30 feet; walls 13 feet high; cost about $1,600.

It is located on the corner near the present cattle barn. Water is furnished from the main tank in the tower. By the plan, the main building is to be also of stone, 52 x 32 feet.

The furnishings consist of an eight horse-power portable engine, separators, churns, and all the appliances for first-class dairy purposes.

A blacksmith shop, 22 x 36 feet, 9-foot posts, has been erected and provided with forges, anvils, and all necessary tools for instruction in iron work.

The library has been increased during the year by the addition of more than 1,000 volumes, at a cost of $1,332.66. This sum was mostly paid from the Morrill fund of 1890. It is now our purpose, as soon as a suitable library building can be obtained, to add very materially to the library. A first-class library, for the use of both teachers and students, is a first-class necessity in any college. We have reason to be gratified with our present library, but its enlargement, with ample accommodations for its use and preservation, is urgently demanded.

Cottage No. 1 has been erected as a residence for a college professor, and is now occupied by Prof. Peebles ; cost, $2,500.

It stands on the Crane farm on the same ridge as most of the other buildings. The plan contemplates the erection of others in the same vicinity. The college well supplies the water, which continues to meet all drafts upon it, dependent only on the winds which rarely fail on College hill.

The removal of the old set of barns, and the grading that has been done about Grove cottage, and some changes in our driveways, have emphasized the demand which we have long had in mind — that the skill of the landscape gardener should be called in to retain and develop the natural beauty of the grounds. Mr. C. T. Barrett of Staten Island, a gentleman of good reputation in his profession, has been called upon to look over our grounds, and give his views for a general plan to preserve and enhance their attractiveness, especially having in view the location of other necessary buildings in the growth of the college. It is designed to prosecute this work under the charge of Prof. Gulley of the department of horticulture as fast as the funds at our control will allow. We believe that it is truly our duty to teach by proper object lessons, how the farm homes — as well as village and city residences — may be adorned, and how our highways and roadsides everywhere may be so treated as to vie with the city park or pleasure ground in their natural preserved beauty, not marred by ignorance or stupidity, the most costly luxuries inflicted on any community.

SUMMER TERM.

This practical school of horticulture is growing in favor as its character and necessity become apparent.

"There is no vacation in agriculture," is an old adage. The powers of nature never cease their action. Seed time and harvest follow in due succession. To secure the fullest mastery over these powers of nature, as manifested in vegetable and animal growth and production, they must be studied at all seasons, and in all their manifestations.

While this term is open to other students, only those who are to graduate are required to take this course. The objection to the long summer vacation is practically obviated by this summer school.

DAIRY SCHOOL.

A practical course in dairying is to open in January, under the special charge of a thoroughly competent instructor, familiar with the best modern methods of dairying. The recent purchase of the best modern appliances for dairy use, separators, churns, Babcock test, etc., provides great advantages for this course.

UNIVERSITY EXTENSION.

For the plan and development of this department you are referred to the special accompanying report of Prof. Peebles. It has proved successful beyond our expectations, and established its right for support. It meets a long-felt want in all rural communities by furnishing opportunities and inducements to study to those whose location and circumstances debar them from the enjoyment of many privileges within reach of other citizens.

THE FARM,

With the recent addition, now contains 321 acres. There are 25 acres of heavy timber, 25 acres of other woodland, nearly 200 acres of mowing and tillage land, and 75 acres of broken land and unreclaimed pasture land. In taking account of the produce of the mowing and tillage land allowance must be made for some thirty acres occupied by the experiment station and the college buildings.

Successful progress has been made in draining the "old swamp" so that we may rely in future on this as a source of income, and an addition to the variety of soils in culture on the farm.

THOROUGHBRED CATTLE.

A few select animals representing different dairy breeds have been added to our farm herd. These were needed as appliances for instruction to illustrate the teachings upon breeds of cattle and cattle breeding. These at present embrace four Guernsey cows and a bull, four Ayrshire cows and a bull, three Jersey cows and a bull, all thoroughbred, approved, and selected by committees representing the different breeds.

POULTRY FOR PROFIT.

A plot of about two acres of rough ground, in a sheltered position near the lake, has been enclosed with wire netting, with suitable divisions, and a number of poultry houses erected.

This is stocked at present with various kinds and breeds of poultry, under charge of Wilbur L. Chamberlain, instructor in this branch, upon whom also rests the burden of showing the profit in poultry.

WANTS OF THE COLLEGE.

To make the national funds which we receive fully available, we need more buildings. The library has already outgrown the present accommodations. A first-class fire-proof building, devoted exclusively to that purpose, is required immediately, or we imperil this present opportunity to establish a first-class library, rich in all departments of science — a means of growth to the teachers, and an inspiration to the students. Our present library is too valuable to be confined longer in its present exposed and cramped quarters. Ten thousand dollars is a low estimate of the cost of such a building, and no delay should be allowed.

The dairy building of stone, completed after the present plan to give room for instruction, is estimated at $7,000. This department of an agricultural college is too important to be allowed to suffer from insufficient accommodations. Progressive dairying demands every aid, that by improved practice and more skill the producer may reap a richer reward, and the consumer enjoy a better product. The encouraging progress in dairy matters during the last twenty-five years should stimulate to continued efforts in the future. Another cottage for residence of a professor is also a pressing necessity.

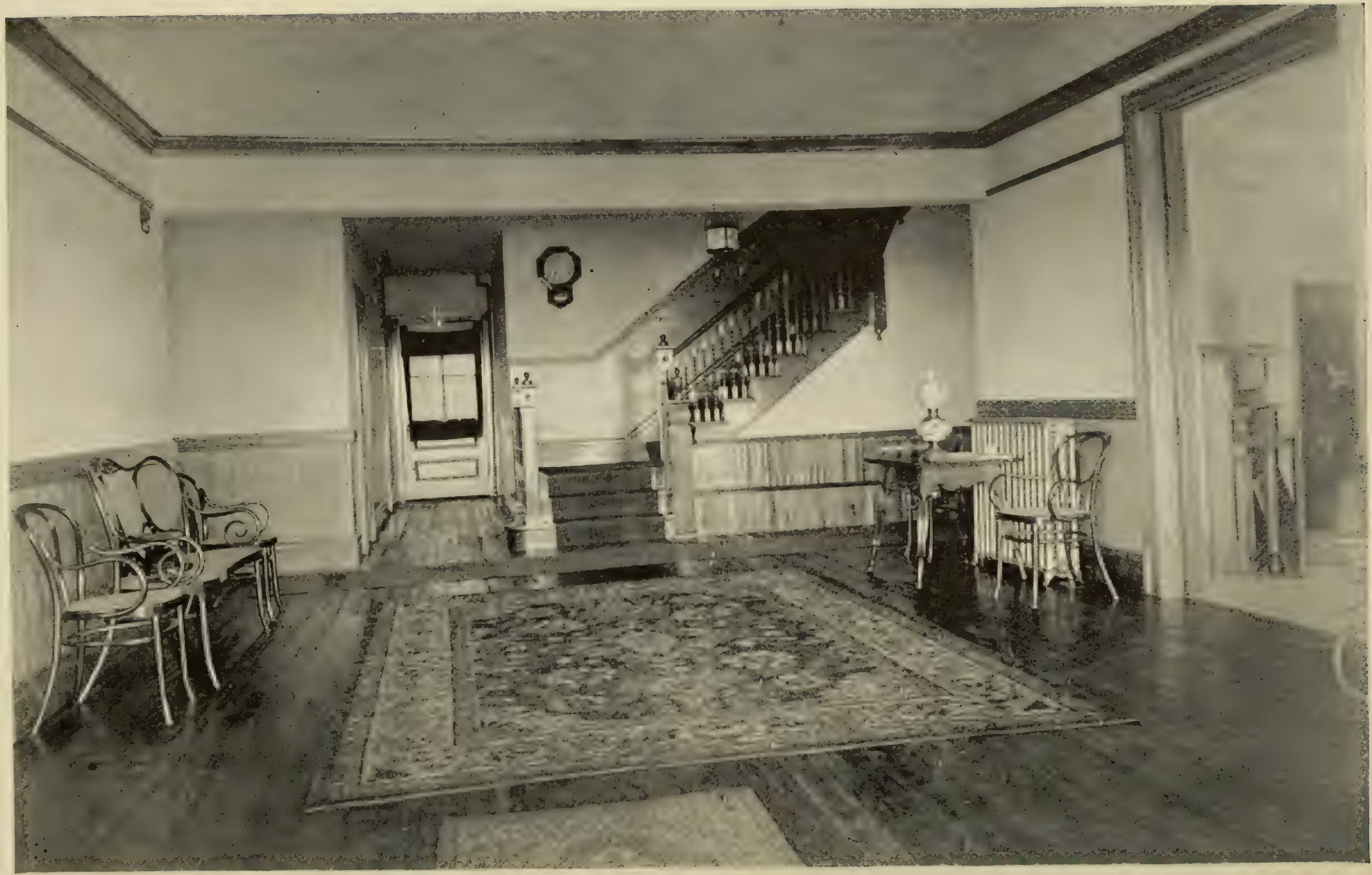
The treasurer, being called upon for his lowest estimate of the sum needed for running expenses of the college not otherwise provided for, such as insurance, painting, repairs, care of buildings, etc., gives the sum of twenty thousand dollars as the lowest figures for these annual expenses of the college.

We are free to speak thus of the demands of the college, as we are sure that when the reasonableness of these claims is shown, the General Assembly will be sustained by the citizens of Connecticut in necessary appropriations not only for the support of the college, but for these buildings so much needed in its present condition, and absolutely necessary to its future development and usefulness.

For more specific details of the condition and progress of the college, you are referred to the accompanying reports of the faculty, with catalogue of students and schedule of studies. The treasurer's report will show the receipts and expenditures for the year, and will indicate what must be our support from the state for the running expenses of the college above the national grants.

Very respectfully submitted, on behalf of the Trustees,

T. S. GOLD,
Secretary.



GROVE COTTAGE—ENTRANCE HALL

GROVE COTTAGE – PARLOR

CALENDAR.

The college year is composed of forty-four weeks, divided into four terms of eight, thirteen, twelve, and eleven, respectively.

1896.

Winter Term began January 6th, and closed March 27th. Spring Term began April 6th, and closed June 17th. Summer Term opened June 29th, and closed August 21st (8 weeks). Fall Term began September 14th, and closed December 15th.

1897.

Winter Term begins January 4th, and closes March 26th. Spring Term begins April 5th. Commencement Day, June 16th. Summer Term begins June 28th and closes August 20th. Fall Term begins September 13th, and closes December 14th.

CATALOGUE OF STUDENTS FOR THE YEAR 1896.

Class of '96.

Howard G. Barber	Union, Tolland Co.
Grace E. Blakeman	Oronoque, New Haven Co.
Olive N. Clark	Saybrook, Middlesex Co.
Albert E. Coles	Rockfall, Middlesex Co.
Clayton T. Curtis	East Glastonbury, Hartford Co.
John H. Evans	Thompson, Windham Co.
Ethel E. Freeman	Spring Hill, Tolland Co.
Grace E. Snow	Storrs, Tolland Co.
Leroy M. Tucker	Middletown, Middlesex Co.
Ernest H. Waite	Middletown, Middlesex Co.

Fourth Year.

Harry E. Atwood	Kensington, Hartford Co.
Robert D. Beardsley	Plymouth, Litchfield Co.
Frederick N. Buell	Plymouth, Litchfield Co.
Fred. F. Bushnell	Winsted, Litchfield Co.
Francis Comber	Hartford, Hartford Co.
John N. Fitts	East Windsor Hill, Hartford Co.
Charles L. Foskett	Winsted, Litchfield Co.
Erma L. Fuller	Mansfield, Tolland Co.
Albert C. Gilbert	Gilead, Tolland Co.
Ralph D. Gilbert	Gilead, Tolland Co.
Arthur O. Green	Hartford, Hartford Co.
Grove H. Johnson	Winchester Center, Litchfield Co.
Victor E. Lucchini	Meriden, New Haven Co.
Harry B. Luce	New Britain, Hartford Co.
Benjamin S. Taylor	South Glastonbury, Hartford Co.

Third Year.

Louis F. Bancroft	Warehouse Point, Hartford Co.
Georgia L. Barnes	Collinsville, Hartford Co.
Wilfred E. Barnes	Southington, Hartford Co.
Albert F. Bidwell	Canton Center, Hartford Co.

D. Julian Burgess,	Mansfield, Tolland Co.
Charles S. Chapman,	Hartford, Hartford Co.
Harry L. Garrigus,	Waterbury, New Haven Co.
Walter S. Gillette,	North Haven, New Haven Co.
Clarence B. Hawley,	Hawleyville, Fairfield Co.
Willis N. Hawley,	Hawleyville, Fairfield Co.
Olcott F. King,	South Windsor, Hartford Co.
Herbert Kirkpatrick,	Cromwell, Middlesex Co.
S. Frederick Loomis,	Glastonbury, Hartford Co.
Edwin S. Mansfield,	North Haven, New Haven Co.
Hermon T. Onthrup,	Middletown, Middlesex Co.
Joseph W. Pincus,	Colchester, Tolland Co.
Max Schaffrath,	Waterbury, New Haven Co.
Fenner Sheldrick,	Hartford, Hartford Co.
Clinton G. Smith,	Litchfield, Litchfield Co.
George E. Smith,	North Haven, New Haven Co.
William W. Stevens,	New Haven, New Haven Co.
William C. Tyler,	Plainville, Hartford Co.
Norman J. Webb,	Plymouth, Litchfield Co.

Second Year.

Charles B. Andrus,	Waterbury, New Haven Co.
Herbert W. Barnes,	Collinsville, Hartford Co.
Harry V. Bingham,	Little Haddam, Middlesex Co.
Palmer Brewer,	Hillstown, Hartford Co.
Asa T. Burdick,	Mount Hope, Tolland Co.
Irving J. Carter,	Meriden, New Haven Co.
Henry S. Coe,	Waterbury, New Haven Co.
Grace L. Dawley,	Plainfield, Windham Co.
Abbie D. Eaton,	Tolland, Tolland Co.
Louis E. Fauntleroy,	Norwalk, Fairfield Co.
Roscoe H. Gardner,	Rocky Hill, Hartford Co.
Arthur F. Green,	Mansfield, Tolland Co.
George M. Greene,	Westminster, Windham Co.
Ida L. Hobby,	Mansfield, Tolland Co.
Willard W. James,	North Windham, Windham Co.
Elsie S. Leach,	Plymouth, Litchfield Co.
William E. Little,	Chestnut Hill, Tolland Co.
Willard E. Mason,	Mansfield, Tolland Co.
George H. Miner,	Vernon Center, Tolland Co.
Bertha M. Patterson,	Storrs, Tolland Co.
Fred. B. Plumb,	Litchfield, Litchfield Co.
Clarence J. Reed,	Hartford, Hartford Co.
George L. Rosebrooks, Jr.,	Storrs, Tolland Co.
Clarence D. Smith,	Westminster, Windham Co.

James M. Stocking,	Weatogue, Hartford Co.
Augusta Terry,	Brooklyn, Windham Co.
James B. Tregaskis, Jr.,	Thompsonville, Hartford Co.
Benjamin H. Walden,	Scotland, Windham Co.
Cassius Way,	Gilead, Tolland Co.
Elmer C. Welden,	Scotland, Windham Co.
Katherine R. Yale,	Meriden, New Haven Co.

FIRST YEAR.

Bret H. Baker,	Granby, Hartford Co.
Charles E. Brainerd,	Taftville, New London Co.
Emerson L. Brooks,	Brooksvale, New Haven Co.
Selma A. Carlson,	Storrs, Tolland Co.
Frank D. Clapp,	East Windsor, Hartford Co.
Albert G. Clark,	Middlebury, New Haven Co.
Harry D. Emmons,	Plymouth, Litchfield Co.
Loretta N. Farrell,	Storrs, Tolland Co.
William R. Geddis,	North Colebrook, Litchfield Co.
Hester C. Hall,	South Willington, Tolland Co.
Mabel F. Hall,	Meriden, New Haven Co.
Eva M. Hobby,	Mansfield, Tolland Co.
George H. Hunt,	East Windsor, Hartford Co.
Anna C. Jacobson,	Gurleyville, Tolland Co.
Julius P. Karp,	Bloomfield, Hartford Co.
Eugene F. Loveland,	Fair Haven, New Haven Co.
John B. Lyman,	East Hampton, Middlesex Co.
Robert S. Mather,	Canton, Hartford Co.
Clifton McKenney,	Farmington, Hartford Co.
Willis B. Munson,	Mt. Carmel Center, New Haven Co.
Edna M. Nason,	Gurleyville, Tolland Co.
Thomas J. O'Brien,	Norwich, New London Co.
Guy R. Phelps,	Simsbury, Hartford Co.
Lena M. Roberts,	Hamden, New Haven Co.
Emma E. Snow,	Storrs, Tolland Co.
H. Bertha Squires,	Storrs, Tolland Co.
Burritt M. Terrell,	Colebrook, Litchfield Co.
Ernest M. Vaill,	Litchfield, Litchfield Co.

SUMMARY.

Class of 1896,	10
Fourth Year Class,	15
Third Year Class,	23
Second Year Class,	31
First Year Class,	28
Total,	107

LIST OF THE GRADUATES OF STORRS AGRICULTURAL COLLEGE,

With the P. O. Address and Occupation of Each.

Class of '83.

Name.	Occupation.	P. O. Address.
Fred. Birge Brown,	Lumber dealer,	Mobile, Alabama.
Charles Spencer Foster,	Buffer,	Terryville, Conn.
Henry Richard Hoisington, Jr.,	Farmer,	Coventry, Conn.
Burke Hough,		Address not known.
Arthur Sherwood Hubbard,	Employed in mfy.,	Glastonbury, Conn.
Andrew Keith Thompson,	Express agent,	New Haven.

Class of '84.

Clifford S. Barnes,	Liveryman,	Bristol, Conn.
Jerry Lincoln Fenn,	Lawyer,	Hartford, Conn.
Frank S. Hubbard,	Employed in mfy.,	Winsted, Conn.
Andrew Hyde,	Veterinary surg.,	Norwich, Conn.
Fred. C. Leavens,	Farmer,	Wauregan, Conn.
Samuel Q. Porter, Jr.,	Farmer,	Panora, Iowa.

Class of '85.

Robert A. Ayer,	Lumberman,	Olympia, Washington.
Horace S. Eaton,	Farmer,	Fairfax, Vermont.
Frank E. Fenner,	Merchant,	Waterbury, Conn.
Archer C. Ford,	Orchardist,	Grand Pass, Oregon.
Royal E. Meyers,	Medical student,	Baltimore, Maryland.
Isaac B. Wakeman,	R. E. deal'r and bkr.,	149 Broadway, N. Y.

Class of '86.

John H. Atkins,	Farmer,	Middletown, Conn.
Eugene A. Bailey,*		
Edgar S. Blair,		Address not known.
Wilbur L. Chamberlain,	Poultryman,	Storrs, Conn.
Fred. T. Coe,	Bookkeeper,	93 Camp St., Meriden, Conn.

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* Died Sept. 18, 1895, at Loveland, Col.

Name.	Occupation.	P. O. Address.
John H. Gardner, Jr.,	Veterinary surg.,	Norwich, Conn.
Henry R. Hayden, Jr.,	Architect,	Northampton, Mass.
Selden W. Hayes,	Asst. Prin. F. Sch.,	Hartford, Conn.
Bruce Hough,	Chair maker,	West Gardner, Mass.
Edgar J. Leavenworth,	Farmer,	Ansonia, Conn.
John B. Perry,	Farmer,	Clark's Falls, Conn.
Arthur L. Reed,	Foreman on farm,	Mansfield Depot, Conn.
Fred. A. Robinson,	Dentist,	Shanghai, China.
Ira B. Smith,	Salesman,	Pensacola, Florida.

Class of '87.

Dexter E. Hall,	Salesman,	Box 1,382, Meriden, Conn.
William J. Irwin,	Employed in mfy.,	15 Oak St., Hfd., Conn.
William S. Lee,	Farmer,	Hanover, Conn.
Sidney H. Perry,	Salesman,	Danielson, Conn.
Edward F. Weed,	Supt. of r. estate,	Rowayton, Conn.
John W. Yeomans,	Employed in mfy.,	Hopedale, Mass.

Class of '88.

Willette Lincoln Alley,	Butcher,	Banksville, Conn.
Wesley Roswell Coe,	Inst'r in Biology at Yale,	2 Hillhouse Ave., New Haven, Conn.
Henry Bacon Hubbard,	Bookkeeper,	21 Orman Place, Brooklyn, N. Y.
George Henry Knowles,	Gardener,	Ellington, Conn.
Keeney B. Loomis,	Farmer,	So. Manchester, Conn.
Harry Lincoln Quinlin,*		
Charles William Roberts,	Farmer,	Middletown, Conn.
Clarence Henry Savage,	Farmer,	Storrs, Conn.
Charles Augustus Wheeler,	Farmer,	Trumbull, Conn.

Class of '89.

Merton Chapman,	Nurse,	Groton, Conn.
Samuel Hart Deming,	Cream gatherer,	Box 24, Farm'ton, Conn.
Fred. Alfred McKenzie,	Stock clerk,	70 Capitol Ave., Hartford, Conn.

Class of '90.

Ernst Hamilton Brandt,	Mgr. N. Y. Br. Hfd. Rubber Wks. Co.,	18 So. St., Mt. Vernon, N. Y.
Merrill Everett Brown,	Shipping clerk,	68 Huntington Street, New London, Conn.

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* Died Feb. 24, 1893, at Newfield, Conn.

Name.	Occupation.	P. O. Address.
Charles James Gilmore,		Address not known.
Wilbur Lionel Goodenough,	Salesman,	Winchester Ctr., Conn.,
Latham Hull,	Stock breeder,	No. Stonington, Conn.
John Hunter Lacke,	Lawyer,	177 Montague Street, Brooklyn, N. Y.
Carlton Elbert Lane,	Grain dealer,	481 E. Main St., Meriden, Conn.
Clarence Bronson Lane,	Asst. in dairy husb'dry,	New Brunw'k, N. J.
George Neth,	Electrician,	59 Seymour St., Hartford, Conn.
Charles Backus Pomeroy, Jr.,	Farmer,	Willimantic, Conn.
Robert Garland Shepard,		Address not known.
Adolph Carl Sternberg,	Fruit grower,	West Hartford, Conn.
Willis LeRoy Wetmore,	Farm superint'd't,	Winchester, Conn.

CLASS OF '91.

Name.	Occupation.	P. O. Address.
Herbert Porch Caldwell,	Salesman,	234 Putnam St., Hartford, Conn.
Charles Vibert Chandler,	Grocery clerk,	So. Windsor, Conn.
Walter Ernest Cummings,	Farmer,	Spring Hill, Conn.
James Sumner Fowler,		Address not known.
John Carter Frisbie,	Farmer,	Southington, Conn.
Alfred Herbert Griswold,		New Britain, Conn.
Arthur Gilbert Hall,	Salesman,	104 So. Colony Street, Meriden, Conn.
Harry Grant Manchester,	Farmer,	West Winsted, Conn.
George Henry Merwin,	Farmer,	Greenfield Hill, Conn.
Fred. Rosebrooks,	Farmer,	Willimantic, Conn.
Walter Lyman Rosebrooks,	Salesman,	165 Greenwich Street, Brooklyn, N. Y.
Charles Herbert Vibert,	Farmer,	Meriden, Conn.
Allen Rice Yale,	Farmer,	Meriden, Conn.

CLASS OF '92.

Name.	Occupation.	P. O. Address.
Charles George Allyn,	Bookkeeper,	Turnerville, Conn.
Seth Herbert Buell,	Student,	Oberlin, Ohio.
Aaron William Fenn,	Farmer,	Plymouth, Conn.
Henry Edward French,	Salesman,	Hartford, Conn.
George Henry Hall, Jr.,	Salesman,	Manchester, Conn.
Walter Holden,	Salesman,	6 Franklin St., Norwich, Conn.
Walter Francis Schults,	Student,	Cornell, N. Y.
Herbert Edmund Warner,	Asst. and student in Sanitarium,	Battle Creek, Mich.

CLASS OF '93.

Name.	Occupation.	P. O. Address.
Ernest Treat Beard,	Farmer,	Milford, Conn.
Walter Harley Bishop,	Farmer,	North Haven, Conn.
Charles Henry Brimble,	Shipping clerk,	150 Allyn Street, Hartford, Conn.
Frederick William Darnstaedt,	Electrician,	Laurel Street, Hartford, Conn.
William Bailey Dayton,	Farmer,	Plantsville, Conn.
Walter Morgan Dunivan,	Moulder,	61 Ferry Street, Hartford, Conn.
Charles Wells Eddy,	Farmer,	Simsbury, Conn.
Edward Blodgett Fitts,	Asst. at Ex. Stat'n,	Storrs, Conn.
William James Frey,	Bookkeeper,	Hartford, Conn.
Martin Moore Frisbie,	Farmer,	Southington, Conn.
Harvey Clark Harrison,	Farmer,	Northford, Conn.
Frank Curtis Osborne,		Address not known.
Martin Hibbard Parker,	Horticulturist,	Storrs, Conn.
Homer Gurley Sperry,	Farmer,	Bolton, Conn.
Walter Arnold Warren,	Farmer,	Willimantic, Conn.

CLASS OF '94.

Charles Brimble,*	Shipping clerk,	150 Allyn Street, Hartford, Conn.
Hobart James Brockett,	Farmer,	Montowese, Conn.
Seth Herbert Buell,*	Student,	Oberlin, Ohio.
John Carter Frisbie,*	Farmer,	Stonington, Conn.
Harvey Clark Harrison,*	Farmer,	Northford, Conn.
Martin Hibbard Parker,*	Horticulturist,	Storrs, Conn.
Louise Jane Rosebrooks,	Housekeeper,	Storrs, Conn.
Walter Francis Schults,*	Student,	Ithaca, N. Y.
Anna Mabel Snow (Fitts),	Housekeeper,	Storrs, Conn.
Herbert Edmund Warner,*	Student and Asst. in Sanitarium,	Battle Creek, Mich.
Walter Arnold Warren,*	Farmer,	So. Coventry, Conn.
Nellie Louise Wilson,	Housekeeper,	Mansfield, Conn.

CLASS OF '95.

Francis Ariel Bartlett,	Farmer,	Simsbury, Conn.
Charles Stoddard Francis,	Farmer,	Newington, Conn.
Martin Moore Frisbie,*	Farmer,	Southington, Conn.
Charles Robert Green,	Mailing clerk,	161 Seymour St., Hartford, Conn.
George Ransom Hall,	Bookkeeper,	19 Capitol Ave., Hartford, Conn.

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* Post-Graduates.

Name.	Occupation.	P. O. Address.
William App Richard Hawley,	Teacher,	New Canaan, Conn.
Arthur Clayton James,	Farmer,	North Windham, Conn.
Arthur Joseph Pierpont,	Farmer,	Waterbury, Conn.
Arthur Edward Shedd,	Farmer,	Preston, Conn.
William Alonzo Stocking, Jr.,	Student,	Ithaca, N. Y.
Arthur Hatch Sturdevant,		Address not known.
Albert Buckingham Tyler,	Farmer,	Bristol, Conn.

CLASS OF '96.

Howard Grant Barber,	Teacher,	Union, Conn.
Grace Emily Blakeman,	Housekeeper,	Oronoque, Conn.
Olive Nicholson Clark,	Housekeeper,	Saybrook, Conn.
Albert Ernest Coles,	Farmer,	Rockfall, Conn.
Clayton Theron Curtis,	Farmer,	E. Glastonbury, Conn.
John Harry Evans,	Farmer,	Thompson, Conn.
Ethel Eugenia Freeman,	Student,	Spring Hill, Conn.
Olcott Frederick King,	Student,	So. Windsor, Conn.
Grace Edith Snow,	Housekeeper,	Storrs, Conn.
Leroy Minor Tucker,	Farmer,	Middletown, Conn.
Ernest Henry Waite,	Student,	Cornell, N. Y.

Graduates upon changing their address are requested to communicate with the President, that the above list may be kept accurate, and the aid of class secretaries and all others is solicited, that it may be properly revised each year.

REPORT OF THE PRESIDENT.

To the Trustees of Storrs Agricultural College.

Gentlemen: — Again it becomes my duty to transmit to you the report of the several officers, covering the period since December 1, 1895.

The year just closing has been an eventful one in the history of Storrs Agricultural College.

At the opening of our term in September last, every room in the young men's dormitories was occupied, and our quarters as full as they should be for the comfort and health of the students.

Perhaps the most notable event of the year was the completion and dedication of "Grove Cottage," a very comfortable and commodious home for the young lady students. This has the necessary parlors, dining-room, kitchen, dormitories, bathrooms, and all the conveniences of a modern, well-planned, and healthful home.

It was formally dedicated on September 8th, when a notable gathering of the Board of Trustees, the Master of the National Grange, the officers of the State Grange, some one hundred and twenty-five lady delegates from the subordinate granges of the State, and the friends of the college generally, to the number of 1,500, gathered here to celebrate the occasion.

At the literary exercises in the forenoon, Hon. J. M. Hubbard spoke for the Trustees. Miss Margaret Kenwill spoke for the faculty. Mrs. Estella H. Barnes of Southington, for the people of the State and the State Grange, and Miss Grace E. Blakeman of the class of '96, for the students. In the afternoon the exercises were under the auspices of the State Grange, and Col. J. H. Brigham, Master of the National Grange, S. O. Bowen, Master of the State Grange, and others, addressed the people.

Among the other important events of the year was the clearing from the campus the set of old horse barns and the procurement of the long-needed and more commodious quarters for our horses.

The new creamery now approaching completion, the blacksmith shop just begun, and many other evidences of growth mentioned in the reports of my associates, or to be seen upon the grounds here, give hope of enlarged growth and permanent usefulness of the institution, for which the trustees, faculty, and friends of the institution have labored so long and faithfully.

Another line of work inaugurated with your sanction during the year, and which has promise of great usefulness among the people of the State, is the course of home readings.

The number already undertaking this work in their homes is far beyond our most sanguine expectations, and the present aspects of the work give promise of phenomenal success in this line.

The summer term furnishes an opportunity to teach those subjects which cannot be taught so well, or not at all, at other seasons of the year. While it is intended for that class which will graduate the next year, members of the other classes, or suitable persons from the outside, are allowed to come in and take the work if they desire.

The work of the term includes practice in horticulture, the study of varieties, planting, culture, harvesting of such things as mature during this season, budding, the study of shrubbery, etc., etc., a multitude of those things which can only be done and studied during the summer season; also, in agriculture, the study of grasses and forage crops during the growing season.

Entomology comes in for its due share of time while the insects are in their prime and doing their mischief in field, forest, orchard, and garden. Also, as an aid in all these studies, freehand drawing receives considerable attention during this summer term.

For detailed accounts of the various departments of our work, I respectfully refer you to the reports of the heads of the various departments, and other information given elsewhere.

Very respectfully,

B. F. KOONS,

President.

REPORT OF PROF. PHELPS.

To the Trustees of the Storrs Agricultural College:

The class-room instruction in agriculture during the past year has followed essentially the same lines as in former years, and may be found outlined in the schedule of studies in another part of this report.

In order that the students may first become familiar with the fundamental principles of chemistry, botany, and physics, upon which the science of agriculture depends, it has been thought best to place most of the instruction in agriculture in the last two years of the course.

The teacher of agriculture may wisely follow two lines of instruction: first, the application of the different sciences to the operations of the farm; such, for example, as the physics of the soil, the chemistry of plant-growth, the application of the laws of physiology to the principles of breeding, the chemistry of cattle feeding, and the relation of chemistry and bacteriology to dairying. This kind of instruction must necessarily be given from lectures and text-books.

A second line of instruction of great value to the student is the demonstration of the principles taught in the class-room in the every-day practices on the farm. For quite a number of years no one has questioned the value of the laboratory as a means of demonstrating the teachings of the text-book in chemistry or physics; and to-day teachers of agriculture and horticulture are endeavoring to make the farm and garden laboratories, where the principles taught in the class-room shall be illustrated and demonstrated.

It is gratifying to report that conditions are each year becoming more favorable for this kind of teaching, and that the Trustees are making increasing effort to make the farm, the stable, and the gardens prominent means of instruction. It seems to me even advisable that no work be *required* of students except such as shall be made instructive, and that this be required of each student without compensation.

Increased funds, now available, are providing means for the purchase of improved breeds of live-stock and of model farming implements. These will prove of value in demonstrating certain principles. During the past fall, committees from the Ayrshire, the Guernsey, and the Jersey Breeders Associations, acting with the Professor of Agriculture, arranged to place thoroughbred animals in the college herd. Each association has selected from prominent herds four or five representative animals. These will doubtless become the foundation for a valuable herd of dairy stock, besides being of service to illustrate the characteristics of the leading dairy breeds. The products of these animals will be utilized in the practical instruction in dairying.

List of thoroughbred stock purchased:

Three Guernsey cows, of the Secretary of the American Guernsey Cattle Club, Wm. H. Caldwell, Peterborough, N. H.

One Guernsey bull, of Francis Shaw, Wayland, Mass.

One Guernsey cow, of C. H. Eno, Simsbury, Conn.

Two Ayrshire cows and a bull, of S. M. Wells, Wethersfield, Conn.

Two Ayrshire cows, of Dudley Wells, Wethersfield, Conn.

One Jersey cow, of S. W. Robbins, Wethersfield, Conn.

One Jersey cow, of R. B. Eno, Simsbury, Conn.

One Jersey cow, of E. S. Henry, Rockville, Conn.

One yearling Jersey bull, a grandson of the famous World's Fair cow, Baroness of Argyle, was presented to the college by Hon. E. Stevens Henry of Rockville, Conn.

Plans have been made for the erection of a dairy building, 52 x 32 feet, with a high basement, and a wing 36 x 30 feet for a creamery. The main part of the building will be used for class-room, office, and a laboratory for bacteriological work. Part of the basement will be used for laboratory work in milk testing and Pasteurizing. So great was the need of better facilities for utilizing the dairy products of the farm and for giving instruction in the care of milk and cream and in the making of butter, that it was deemed best to build and equip the creamery wing of this building during the past fall. This has been done, at an expense of about $1,600 for the building, and about the same sum for its equipment. It is hoped that in the near future funds will be provided for the completion and thorough equipment of the entire building.

THE COURSE IN DAIRYING consists of lectures in dairy farming, the nature and composition of milk, butter, and cheese; the marketing of milk, cream, and butter; methods of separating cream; the Babcock system of payment for milk and cream, bacteria in dairy products, Pasteurization, butter-making; cheese-making; and oleomargarine. In addition, practical instruction is given in the use of the Babcock test, the separation of cream, the Pasteurizing of milk and cream, and in butter-making. The equipment of the new creamery consists, in the main, of steam Babcock tester, two styles of steam power and two of hand power separators, storage vats for milk and cream, two styles of power churns, two of butter workers, and one hand worker, one double Pasteurizing vat, and a large variety of necessary small tools.

The creamery is arranged to illustrate the gravity system of work, thus necessitating very little lifting of the products. The practical instruction in milk testing, cream separation, and butter-making has been placed in charge of Mr. C. L. Beach, a graduate of Wisconsin University, and a former assistant in the Dairy School there.

Respectfully submitted,

C. S. PHELPS,
Department of Agriculture.

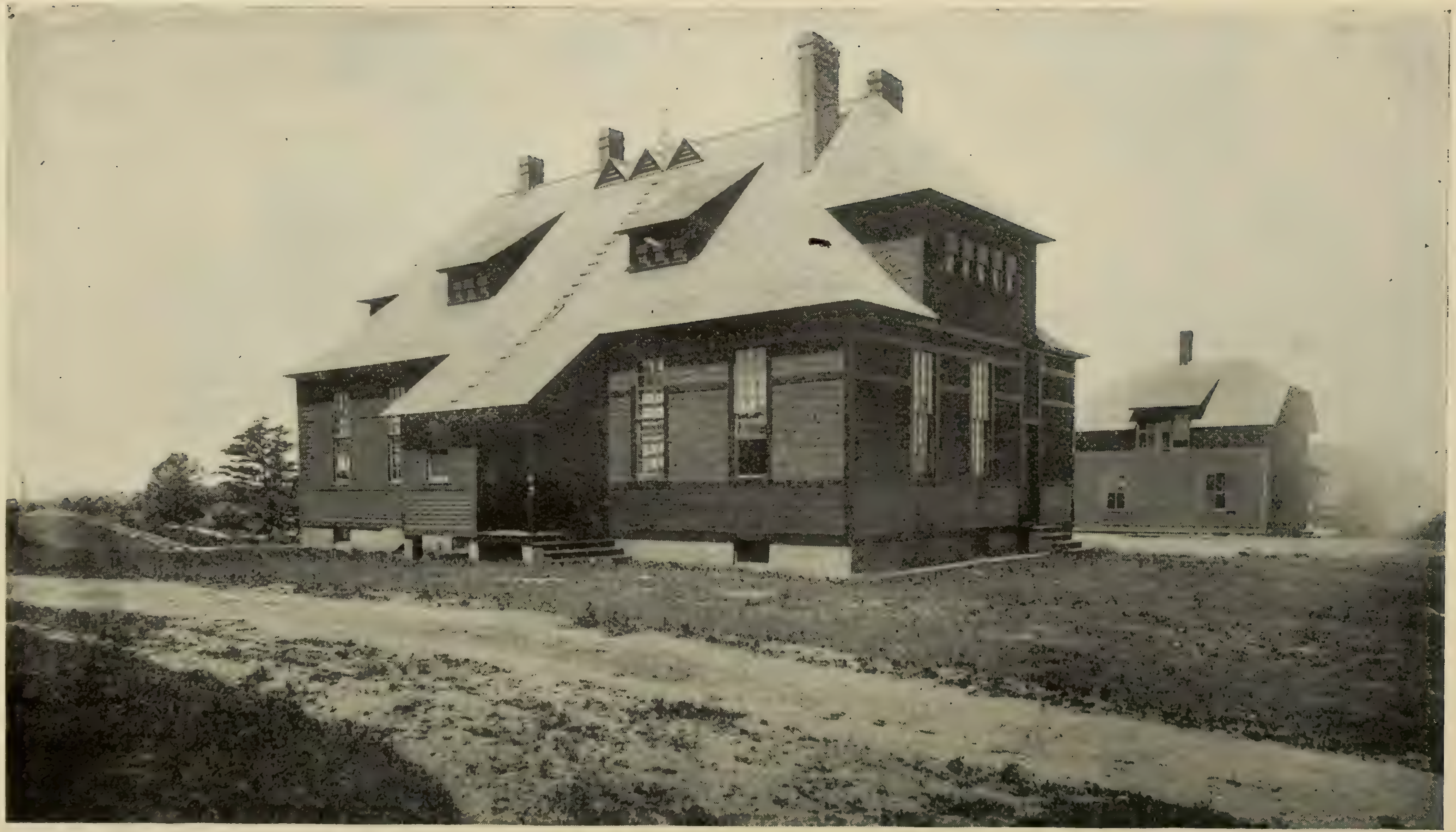
REPORT OF PROF. PEEBLES.

To the Honorable Board of Trustees, Storrs Agricultural College:

SIRS: — The subjects that come under my department are chemistry, inorganic and organic, laboratory and lecture-room demonstrations, physics, text-book and laboratory practice, mathematics and surveying. The distribution of these subjects and hours employed may be seen by an examination of the schedule of classes.

There has been a distinct gain in every branch owing to greatly improved laboratory equipment.

The schedule adopted in September, '96, at opening of present college year, provides for an earlier entrance upon the



CHEMICAL LABORATORY AND EXPERIMENT STATION OFFICE

INTERIOR OF CHEMICAL LABORATORY

important subject of mathematics, and a corresponding lengthening of the time.

Considerable time has been employed in making surveys of the newly purchased land, and in preparing a complete map of the farm and campus. Also in the construction of a new sewer line for the girls' dormitory.

The enlargement of the library has required a considerable amount of time. The importance of this feature of our college work suggests the desirability of employing a librarian who could give his entire time to work of purchasing, cataloguing, and care of our library. The small room now occupied as reading-room and library is utterly inadequate to the purpose. A new fire-proof library building seems an absolute necessity.

The work incident to the inauguration of the extension department has been very great. The details have been reserved for a separate treatment, as also an account of the library.

Very respectfully yours,

A. B. PEEBLES.

THE EXTENSION DEPARTMENT.

The work of the extension department was formally entered upon in October of the present year, 1896. The generous support of the board made it possible for us to do a large amount of advertising of the course, which was done by agreeing to go to any grange or other organization desiring a lecture on some popular subject, and giving in connection with this a part of the hour to the subject of the college and the proposed extension department. Something more than forty lectures have been given on this plan; also, by invitation of the State Grange, the subject was discussed at the last State meeting in Hartford, and in other ways the work has been brought to the attention of the people of the State.

The plan consists of a course for ladies and one for gentlemen. It is intended to cover two years' time; each year is divided into four periods of two months each beginning with October. A text-book is provided for each period, and at the close of the period an examination paper is sent to each member. Books are provided at cost, and by special arrangement with the publishers it has been possible to reduce the cost for the year's books to about two dollars and a half ($2.50).

It was provided that at any grange or other association where a circle of ten or more was formed, during the year two members of the college would spend a day and an evening with the circle, providing lectures in connection with the subjects studied, to close with a popular illustrated lecture in the evening. There have been twelve circles formed, the largest of which is at Middlebury, with a membership of about forty.

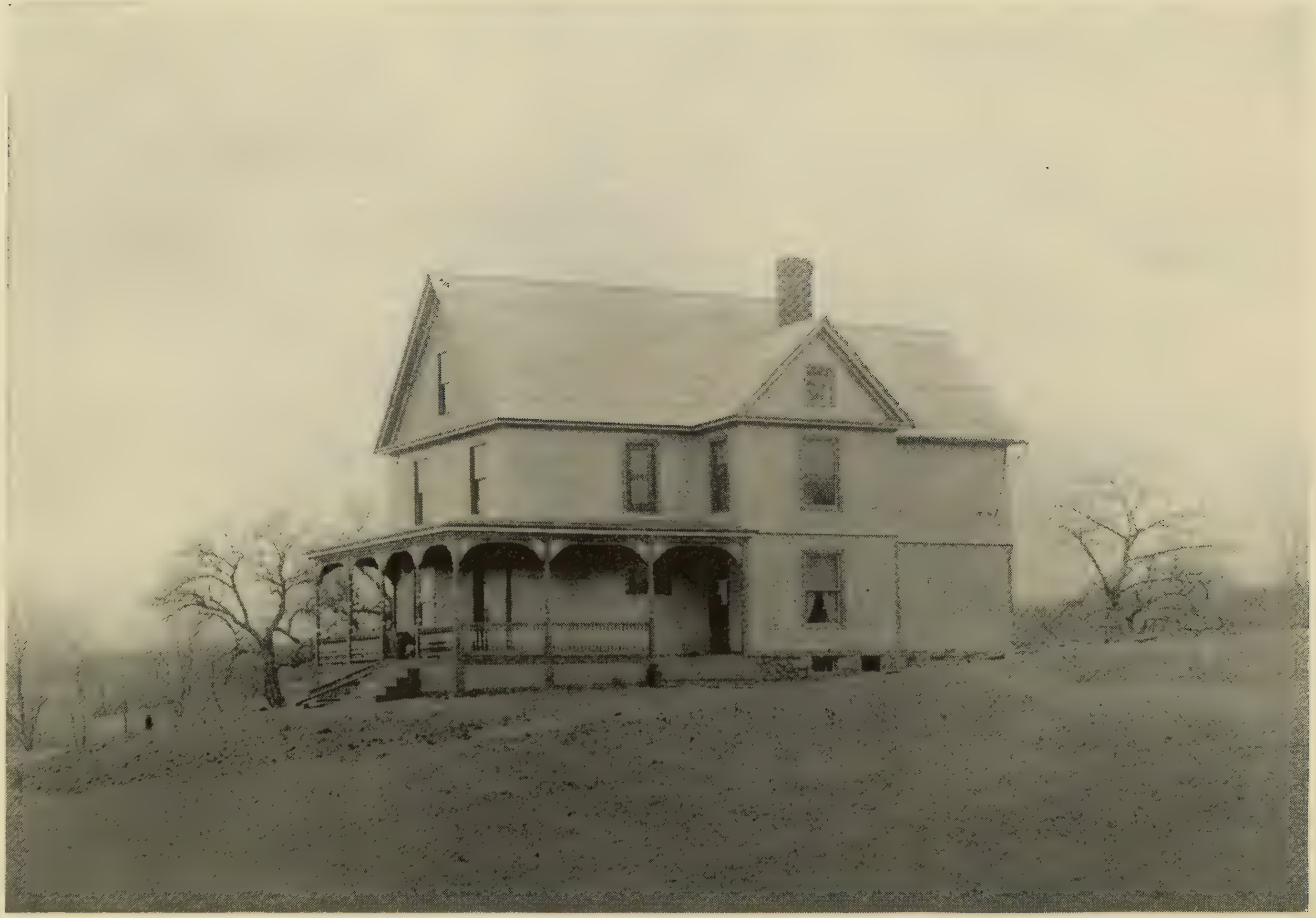
The reception of this effort has been entirely beyond our greatest expectation. It was thought that if we secured fifty members for the extension department the first year it would be an auspicious beginning; it is therefore a matter of pleasure to us to report that there are up to January 1, 1897, a membership of 203. It is not to be expected that all of these will complete the course, for some will drop out, as happens in all such cases. Indeed, only a part of the number who enter college continue to the end of the course.

The management of so large an enterprise has entailed a large amount of work upon the secretary of the extension department. If the work is followed up as it should be some assistance will be required. The enthusiastic reception of this effort on the part of the college to provide valuable and interesting study for the people of the State interested in agriculture and allied topics shows that there was a place and demand for just such a course.

Various States have made attempts in this direction, but they have generally failed to realize the purpose aimed at.

It is believed that some of the reasons for our unusual success are found in these: First, we have provided a definite course that is within the reach and possibility of almost any one; second, the cost has been such as to place it within the reach of every one. Provision has been made by the use of coin cards and printed return envelopes for the easy payment for each of the books in turn, only one book being sent out at a time. When this is finished another book is ready.

This makes the tax at any one time not over 60 cents, and by providing an easy way for the sending of such an amount, a serious obstacle has been removed. It is a difficult matter for



COTTAGE No. 1—RESIDENCE OF PROF. A. B. PEEBLES' people in the country to send small amounts of money, and this feature, although apparently insignificant, will, I think, account in no small measure for the success of the undertaking.

It is a beginning of a very useful line of work for the college. It brings people of the State into touch with the institution, and carries something of value to each member.

We expect to improve on the course of study, so that it will gain in value each year. After the finishing of the two-years course further elective courses in various lines, corresponding to the different departments of the college, are projected.

The possibilities for larger usefulness of the college by this means is plain to anyone, and it is greatly to be desired that the work may receive your hearty support in the future as it has thus far.

Very respectfully,
A. B. PEEBLES,
Sec'y Extension Dept.

LIST OF MEMBERS OF EXTENSION DEPARTMENT.

Arthur J. Abbott, Middlebury.
Edith V. Abbott, Middlebury.
G. Fred. Abbott, Middlebury.
Geo. B. Adam, E. Canaan.
Mrs. Geo. B. Adam, E. Canaan.
Luther B. Ashley, Scotland.
John H. Atkins, Middletown.
Geo. A. Austin, Suffield.
John D. Avery, North Stonington.
Mrs. John D. Avery, N. Stonington.
Chas. E. Bacon, Middletown.
Eliza M. Bacon, Scotland.
Mrs. Albert A. Baldwin, Milford.
Lizzie C. Banks, Greenfield Hill.
Cora L. Barbour, Southington.
Addie L. Barnes, Southington.
John L. Bass, Scotland.
Frederick L. Bassett, Middlebury.
William J. Bayrer, Marion.
Alice M. Beard, Milford.
Ernest T. Beard, Milford.
Edward L. Beebe, East Canaan.
Fannie A. Beebe, East Canaan.
Royal F. Beers, Waterbury.
Samuel P. Beers, Greenfield Hill.
Herbert P. Bill, Clark's Falls.
Herbert J. Bingham, Milldale.
Anna Bissell, Middlebury.
A. W. Bissell, Middlebury.
Clara M. Bottum, East Canaan.
Elizabeth B. Bradley, Greenfi'd Hill.
Laura J. Brewer, Hillstown.
Geo. B. Bristol, Middlebury.
Bessie W. Bronson, Middlebury.
Frances E. Bronson, Middlebury.
Jane L. Bull, Southington.
Wallace Canfield, East Canaan.
Mrs. Wallace Canfield, E. Canaan.
J. S. Case, Colchester.
Robt. A. Chalker, Saybrook.
L. P. Chamberlain, Storrs.
Fanny M. Chapman, Brooklyn.
W. F. Chapman, Brooklyn.
Annette R. Clark, Hampton.
Artisan S. Clark, Middlebury.
Christina L. Clark, Middlebury.
Elliott D. Clarke, Milford.
Mrs. Elliott D. Clarke Milford.

Joseph W. Clark, Hampton.
Nellie C. Cleveland, Hampton.
Blanche W. Clinton, Clintonville.
Julia W. Coleman, South Coventry.
M. P. Coleman, South Coventry.
Eva E. Collins, Woodmont.
Mabel Converse, Eastford.
Mrs. Frederick Cornwall, Milford.
William B. Dayton, Plantsville.
Rolla E. Demay, Middletown.
Chas. A. Desmond, Clintonville.
E. J. Donalds, East Canaan.
Edward R. Dunn, Ashby, Mass.
Frederick A. Emmons, E. Canaan.
Byron H. Evans, Thompson.
Genie Evans, Thompson.
Robt. M. Fenn, Middlebury.
Edward A. Ferrill, Middlebury.
John H. Francis, Meriden.
Mabel A. Francis, Meriden.
John C. Frisbie, Southington.
Martin M. Frisbie, Southington.
Martin W. Frisbie, Southington.
Maude L. Gardner, Springfi'd, Mass.
H. Paul Geissler, Brooklyn.
Mabel R. Gilbert, Middletown.
Orrin Gilbert, Middletown.
Rose D. Gilbert, Middletown.
Sara E. Gilbert, Middletown.
Thomas Gilbert, Middletown.
Geo. A. Griggs, Phœnixville.
Harry B. Griswold, Middlebury.
Geo. B. Hamlin, Sharon Valley.
Olive G. Hamlin, Plantsville.
Wm. H. Hammond, Elliott.
Jessie A. Haskins, Scotland.
Leander O. Haskins, Scotland.
John R. Henshaw, Suffield.
Wakeman B. Hill, Greenfield Hill.
Frances L. Holt, Southington.
Joseph E. Holt, Chester.
Mary E. Holt, Southington.
Wm. W. Howland, East Canaan.
Mrs. W. W. Howland, East Canaan.
Mary R. Igoe, Middlebury.
Ada F. Jennings, Greenfield Hill.
W. S. Jennings, Greenfield Hill.
Chester B. Jewett, Hampton.
Elmer C. Jewett, Clark's Corners.
Mrs. Elmer C. Jewett, Clark's Cor.
Lizzie D. Jewett, Clark's Corners.
Mary W. Jewett, Hampton.
W. W. Jewett, Rawson.
Henry S. B. Judd, Middlebury.
Martha E. Judd, Middlebury
Edith N. Kirtland, Chester.
Frank P. Lane, Westport.
Julia E. Lane, Westport.
Edith E. Lawrence, East Canaan.
Howard F. Lawrence, East Canaan.
Julius B. Lewis, Southington.
Mabel E. Lewis, Southington
Alice Litchfield, Brooklyn.
Delia C. Litchfield, Hampton.
Jessie E. Lobdell, Greenfield Hill.
Frank C. Loomis, Middlebury.
Sadie E. Loomis, Middlebury.
Wilfred A. Maine, Clark's Falls.
Ida A. Manley, Meriden.
Raymond N. Matson, Bridgeport.
Mary E. Merrill, Middletown.
Josiah H. Merriman, New Britain.
Harry C. C. Miles, Milford.
Mrs. H. C. C. Miles, Milford.
Robt. D. Miller, Clayton, Mass.
Henry S. Moore, Southington.
Mary H. Moore, Southington.
Minnie S. Moore, Southington.
Susan C. Moore, Southington.
Edwin F. Newton, Agawam, Mass.
Eugene O'Hara, Thompson.
Mary L. O'Hara, Thompson.
Charlotte H. Palmer, Brooklyn.
Mary J. Parsons, Saybrook.
Wm. A. Pearl, Hampton.
J. Arthur Pease, Greenfield Hill.
Simeon Pease, Greenfield Hill.
Arthur B. Peebles, Storrs.
Mrs. G. W. Peebles, Storrs.
Ella M. Pellett, Westminster.
Leora E. Pendleton, Scotland.
John B. Perry, Clark's Falls.

Fred B. Plumb, Litchfield.
Mrs. W. H. Plumb, Litchfield.
Emma E. Pratt, Deep River.
Frederic C. Pratt, Deep River.
Harriet R. Rice, Meriden.
Wm. B. Rice, Meriden.
Elijah Rogers, New Britain.
Frank M. Rogers, Middletown.
Sarah Rogers, New Britain.
Lester Root, East Canaan.
Fannie E. Russ, Chaplin.
C. H. Sage, East Canaan.
Mrs. C. H. Sage, East Canaan.
Caleb M. Scott, Elliott.
Bertha F. Sharpe, Brooklyn.
Joseph R. Shepard, Plantsville.
W. M. Shepardson, Middlebury.
Arthur Sikes, Suffield.
Frank H. Sikes, Suffield.
Laura M. Sikes, Suffield.
Asabel A. Smith, Middlebury.
Julia E. Smith, Middlebury.
Lottie M. Smith, Middlebury.
Mary A. Smith, Scotland.
S. W. Smith, Ansonia.
Mrs. S. W. Smith, Ansonia.
Philip Smyth, Hartford.
Paul B. Spencer, Brooklyn.
Antoinette Stevens, East Canaan.
Henry C. Stevens, East Canaan.
Jarvis C. Stevens, East Canaan.
N. S. Stevens, East Canaan.
Wm. W. Stevens, Clintonville.
Ellen H. Sumner, Mansfield Center.
Mrs. G. M. Thompson, Jr., Hampton.
Geo. E. Townsend, Middlebury.
Wm. W. Townsend, Middlebury.
Frank H. Tyler, Middlebury.
Nellie M. Tyler, Middlebury.
Rena L. Upson, Marion.
Philip T. Vibert, Meriden.
Howard I. Wakeman, Greenfi'd Hill.
Susan F. Warren, Eastford.
William S. Warren, Eastford.
Nettie M. Waterhouse, Southington.
Stanley L. Weaver, Hampton.
Elmira A. Wells, South Woodstock.
Arthur E. Wheeler, Middlebury.
Howard P. Wheeler, Pomfret Center.
Ellen S. White, North Granby.
Leverett M. White, North Granby.
Josie B. Whiting, Southington.
N. G. Williams, Brooklyn.
Jay D. Wood, Middlebury.
John S. Wood, Middlebury.
Esther M. Woodford, Middlebury.
Mary R. Woodward, Amenia Union, New York.
Arthur C. Yale, Meriden.
Julius H. Yale, Meriden.
Mrs. Julius H. Yale, Meriden.
Mary E. Yale, Meriden.
Ethel E. Young, Brooklyn.

The Library.

The liberal appropriation of the Board for the purpose of buying books has enabled us during the past year to add very materially to the library. There have been added during the year 1,182 volumes, costing $1,332.66.

We have taxed to the utmost the capacity of our present room. Indeed, we have 300 or more volumes that have been of necessity stored away in the attic, waiting for more shelf-room.

The library is growing year by year more valuable, and with a value that it would be difficult to replace in case of loss by fire. It seems, therefore, a pressing necessity, that a suitable building for a library should be provided in the near future.

The value of the library will be greatly enhanced if the work of cataloguing, which has been begun, might be carried on and kept up to date.

During the year we have added 34 bound volumes of periodicals, which contain a fund of useful information on a wide range of subjects. It seems desirable that we continue the work of binding the leading periodicals of the day.

The government and state bulletins of the experiment stations have accumulated in large numbers. The work of arranging these, securing missing numbers, and having the reports properly bound, is a matter that deserves immediate attention. The employment of a trained librarian for a few months would add vastly to the efficiency of the library.

The reading-room is, at present, in the library, or in the room used for the library, and is well supplied with the leading periodicals of the day, and all the best current publications in agriculture and subjects related to the general work of the College. The number of periodicals is about 50, some of which are given to the College and the others obtained at an expense of about $100.

The library and reading-room have been used by the students with increasing interest, and the number of books drawn has been nearly trebled during the last year.

It gives us pleasure to report the increased number of attractive volumes, and the interest shown by the students in this valuable branch of our general work.

Very respectfully,

A. B. PEEBLES.

REPORT OF PROFESSOR GULLEY.

To the Trustees of Storrs Agricultural College:

Gentlemen: — Class exercises in my department have not varied much from last year, the greatest change being to use much more laboratory work in teaching botany. The new

GREENHOUSE

INTERIOR OF GREENHOUSE

schedule requires the study of botany by the two lower classes, a portion of the present year. With the two higher classes study has been the same as last season.

Another year's experience with the summer term has fully demonstrated its feasibility and usefulness. This, also, was carried out much on the lines laid down last year. The addition of a year's growth to plants in the orchard and nursery made this branch more interesting to the class. The benefit to be derived from this department has been greatly increased by the addition of this term to the course.

While duties in class-room have not changed greatly, the operations outside have made a material difference in the appearance of the grounds. The new walks and drives, laid out last year, were hardly completed when the purchase of the adjoining farm opened the way for the removal of the group of unsightly buildings in the middle of the campus. This was disposed of, partly by tearing down and partly by changing to other sites not so prominent. In its place was left a plot of land that required much filling and grading before it could be seeded for a lawn. This, with the usual spring work, fully occupied the time till Commencement. The improved appearance of the grounds fully compensates for the expense of the change.

The location of the new dormitory entailed another extensive job of grading upon this department, which has been advanced as far as labor could be spared from necessary operations. The work in front of the building will probably be completed this fall. The deep fill in front of this building has also made a place in which to dispose of many rods of useless stone walls, adding to the apparent extent of the grounds.

The recent action of your honorable body in seeking the advice of a professional landscape gardener in the general arrangement of the grounds and future location of buildings, will go far towards preserving the natural advantages of the location, and prevent serious mistakes which cannot be easily remedied.

One of the barns removed last winter was placed near the greenhouse as a tool-building for this department, which we much needed. This, when fully completed, will have a fine room, with stated places for each hand-tool, another apartment for horse implements, and a second floor for sash, seeds, and other articles.

The amount appropriated for fruit models has been expended during the season. The fine apple crop enabled us to secure specimens of several varieties, and the models are largely of this class of fruit. The collection at present contains models of 48 varieties of apples, 12 of pears, 11 of plums, and one of quince. The accuracy of form and color is very satisfactory. It is hoped next year to add the tender and small fruits.

The labor of the students during the summer term was largely used in continuing the draining of the large swamp, which was commenced last year. Tile to complete the job was purchased, and about two-thirds of the undrained portion was tiled. The work was carried forward only as long as the term lasted, no outside help being employed. There still remains about 120 rods of three-inch drain to put in, to complete the tract. A small portion of that drained last year was broken up by Professor Chamberlain last fall, and cropped by him the present season, yielding a fine crop of corn. This department used a very little plot, upon which some fine celery was grown. It is intended to devote all that was under culture the past season to garden crops another year.

Professor Chamberlain has broken up a much larger tract the present fall, which he will probably crop next year. This piece of bottom-land, when subdued, will be the "garden" of the college farm.

Only a small addition was made to the variety of tree-fruits the past season, although the purchase of the new farm added about 100 bearing trees of old standard apples, but of small fruits several new kinds were planted, particularly of currants and gooseberries. Of specimen ornamental trees and shrubbery several new varieties were put upon the campus. There yet remains much to be done along these lines as soon as it shall be decided where they can be placed permanently.

The small amount voted to purchase specimen plants for the greenhouse has not yet been used, as it was deemed best to wait till fall. This addition will soon be made.

Mr. Willard Parker of '94 has been engaged to fill the po-

MILITARY COMPANIES

sition of assistant in this department. Mr. Benjamin S. Taylor, a present senior, has ably assisted in the details of the greenhouse work for the past season.

One important gift was received by the department early in the year,— a barrel spray-pump and agitator complete, of the latest and finest style, from the manufacturers, Morrill & Morley, Benton Harbor, Mich. It was much used the past season. We are also under great obligations to Mr. N. S. Platt of Cheshire, and to fruit exhibitors at several fairs, for specimens freely given, from which were patterned the models in the collection above mentioned.

Respectfully submitted,

A. G. GULLEY,

Department of Horticulture and Botany.

REPORT OF PROFESSOR WATERMAN.

To the Trustees of Storrs Agricultural College:

GENTLEMEN: — The work of the Veterinary Department has been very similar to that of previous years. A few changes have been made where experience has led us to think that changes would be beneficial.

The second year class began with anatomy. The third year class finished anatomy and then took up medicine and diseases. The fourth year class finished medicine, took up surgery and lamenesses, after which they will take up the special diseases of breeding animals, and will finish the year with a little practical histology. In this work they will have an opportunity to see the microscopic structure of nearly every tissue in the animal economy.

In the class-room work we find the horsikin and skeletons of great value. They not only add to the interest, but make the subject much easier for the students to understand.

The human skeleton and manikin will also be of great value to the class in physiology the coming terms of the year. Another new feature in physiology will be two hours' laboratory work each week.

The military drill has been carried on as in previous years, the seniors rendering valuable assistance as officers.

Respectfully submitted,

GEO. A. WATERMAN.

REPORT OF PROF. LEWIS.

To the Trustees of Storrs Agricultural College:

GENTLEMEN: — The course pursued in the departments of English Literature, Rhetoric, and Ethics, is, with slight variation, that reported in the *Catalogue* for the last year.

Fourth Year. "Literature." Two hours every week. Beginning with its rise in Britain we aim to trace the growth and expansion of our literature from Cadmon to the present.

My method is, to give, as occasion requires, brief lectures, indicating the historical setting of the author and his works, so as to associate in the student's mind the precise movement in politics, science, or religion, in which the author finds the keynote of his message. In other words, it is to read literature through history.

Effort is made to bring the student face to face with the authors themselves. In this place, it is proper to say, that our well-chosen library of four thousand volumes adds much to the facility of the work.

The text-book, "Brooke's Literature," is strictly adhered to. This, though limited in its details, is remarkable in purity and elegance of diction, as well as accurate, unbiased, and decisive in its criticism of authors and books. Topics are assigned in contemporary literature, and every student is required to produce a *Comprehensive Essay*, of not less than three thousand words, to be handed in on or before March first.

Once a term the student prepares an *address*, to be delivered in the college chapel.

Fourth Year. "Rhetoric." Two hours a week for four weeks are given to complete the book. (See "Waddy's Rhetoric and Composition," beginning with Paraphrase.) The composition of a *poem* of not more than twelve lines, Iambic or Trochaic, ends this course.

REAR VIEW WITH LAKE

PLANTING CLASS TREE

One hour a week is given to *readings*. Special emphasis is laid upon pronunciation, articulation, expression, and interpretation. Shakespeare's *Julius Cæsar*, *Merchant of Venice* ; Milton's *Paradise Lost*, Bk. I. ; Tennyson's *In Memoriam*, and other selections are read.

Ethics. Two hours a week. Janét's *Eléments de Morale*.

Third Year. Two hours a week. Beginning with "Elements of Composition" (see Waddy's). Every month the student is required to prepare an essay on a subject of his own choosing.

Rhetoric. One hour a week. Genung's "Rhetorical Analysis" forms basis of work. Etymology and accuracy in reading, together with emphasizing salient points in expression, are sought for.

It is my purpose to introduce into the *Spring* term of the Senior year, the study of Guizot's *French Revolution*, or its equivalent.

Respectfully submitted,
EDWIN J. LEWIS.

REPORT OF MISS KENWILL.

On Elocution.
Ethics.
Sewing.
Grove Cottage.
General History.
Current History.
Care of Buildings.
Care of Sick.

To the Trustees of Storrs Agricultural College :

ELOCUTION.

Elocution includes exercises for physical and vocal culture, besides the study and analysis of selections for reading and recitation ; and the study of the theory, art, and mechanism of vocal delivery. The term closes with an evening of public recitations and declamations.

Special effort is made to inspire pupils with a love for books, through the study of the literature presented as well as to create enthusiasm in the direct work of the class, without which no worthy results can be reached.

Attention is given to correct English and pronunciation — those outward and visible signs of the educated person — and the value and importance of the ability to express one's self correctly and with force, ease, and dignity, is kept constantly before the pupil.

GENERAL HISTORY.

In breaking fallow ground in this study the first effort has been to interest and stimulate the learners, to create a desire for a knowledge of history, to send them to the library, to direct them to the sources of information, in short, to make readers.

Narrative, in prose and poetry, bearing upon the period, read, recited, or narrated by the class is used to arouse attention and stimulate interest.

The value of the work will be greatly enhanced during the coming year by stereopticon slides, to be used with a solar camera. Every country studied will be illustrated by these pictures, in its life and culture, its art and architecture.

The student of history is directed how to study, how to lay hold of the kernel of the matter, and then a plain, concise statement of the subject is required of him. The whole is then gleaned after by questioning.

As the end of all study is not so much knowledge as education, the pupil must be trained to think, to deduce from stated facts other related facts and probabilities, to inquire into causes and effects, and to observe the trend of events in politics and morals.

He must be led to observe that nations like individuals reap what they sow, to consider the great permanent forces that bear nations forward to improvement or decay. To observe how

"Through the ages one increasing purpose runs
And the thoughts of men are widened with the process of the suns."

All this is mental discipline and intellectual broadening, and as there is no text-book of ethics equal to history, and as any education taking no cognizance of the education of the heart is a one-sided affair, or worse, the history of the morals and civilization of nations and peoples is noted and compared as to effects and results. And, finally, certain salient and important facts in the political and civil history of nations and individuals are reviewed and memorized — stored away to illumine future reading.

But it would require an essay to suggest the numerous aspects of the teaching of history which here can only be hinted at.

ETHICS.

Unlike other studies, ethics calls for a very personal expression in recitation and for this reason demands more tact from the teacher who must interest and inspire her class while she wins their confidence and put them at ease in order that they may express themselves without embarrassment, and with earnestness and sincerity on such personal and intimate matters as habits, feelings, hopes, ambitions, and aspirations.

Some most satisfactory results have been reached by general discussion of the topic, and this has trained pupils for more public debate on ethical questions which, in turn, has aroused and sustained interest not only in the class studying the subject, but in visiting classes as well.

A very gratifying improvement in the moralé of the entire student body is observable this fall. This is traceable to several causes and is a matter of profound thankfulness to all having the highest interests of the college at heart.

CURRENT HISTORY.

By the study of current history, as recorded in the newspapers, interest in important public events in our own and other countries is awakened, and the pupil led to feel that all matters of vital public import are the personal affair of every intelligent person, and thus is laid the foundation of an intelligent and responsible citizenship.

The horizon is very wide in all the subjects mentioned, and no one can be more aware than the earnest teacher that little more than a beginning can be made. But if an interest and enthusiasm can be aroused which will lead to future reading and study, and to final expression in quickened intelligence and more generous sympathies, she has her reward.

SEWING.

The classes in sewing follow the general plan laid down in former reports. A regular graded system of lessons in hand sewing is given, and machine work is taught on several styles of sewing machines, three new ones having been added to the equipment this fall.

CARE OF BUILDINGS.

General improvement in the habits of the students is observable in the better condition of the dormitories. Better sanitary conditions are imperative, however, in the Old Dormitory, which should receive immediate attention.

CARE OF THE SICK.

The health of the students during the past year has been good in the main ; no epidemic or serious case of sickness having occurred during that time.

No week passes, however, and scarcely a day, without a call to administer to some small accident or ailment which makes a demand on the hospital supplies as well as upon the time and sympathy of the person in charge.

GROVE COTTAGE.

Life in our new home for the young women of the college has begun most auspiciously and happily. We are fortunate in beginning our new department with a family so harmonious and pleasant.

All social functions conducted under the more favorable circumstances have grown in refinement and courteous manners, and the hope entertained that all, young men as well as young women, would share in the benefits of the improved conditions seems likely to be fulfilled.

Respectfully submitted,

MARGARET KENWILL.

REPORT OF MISS SMITH.

To the Board of Trustees of Storrs Agricultural College:

Gentlemen: — My department has been carried on as outlined a year ago, almost without change. But this fall it was deemed best to so far change the arrangements as to bring the first-year class in greater touch with the more interesting side. As the work in the home, to be well done, must attract, so is it essential that our young ladies shall learn to think of housework in a not unpleasant way. For this end I have advanced a step, leaving more time for other needed duties at the end of the Senior year.

The present arrangement covers more ground during the course, and will, I trust, prove even more interesting and instructive. During the fall term of the first year the laundry will hold their attention, both lectures and practice in removing stains, grease, etc. The subjects of soap, starch, and blueing will be discussed, and the class will make both hard and soft soaps. In the winter term they will learn the first principles of good cooking, and will prepare some simple dishes. In the spring term they will return to the laundry for the necessary practice, and will also take up hygiene.

In the fall term of the second year they will study the home, and, so far as possible, all that relates to the home, like house furnishing, housework, etc. The winter term will be given to cooking for the sick, and in the spring the subject of Home Sanitation will be considered. Special attention will be given to the proper disposal of drainage and sewage, and the evils of carelessness will be shown.

The third year remains unchanged. A thorough, practical course in cooking, with this definition ever in mind: "To be a good cook means the economy of our grandmothers and the science of the modern chemist."

The fourth year will open with a review of food principles, and will continue with a short course in fancy cooking. In the winter term the pupils will give their time largely to dress-cutting, and each member is expected to provide herself with dress material to make during this and the spring term. This course in dressmaking includes the drafting, cutting, fitting, making, and trimming of a dress. We have three new sewing machines, which add greatly to this department.

In the Spring term the subject of Bacteriology will be taken up, so far as it affects our food, and through our food, our health.

At all classes held in the kitchen laboratory members are expected to wear light wash dresses, caps, and aprons. To do one's work well, one must be dressed for it; and it is of great importance that students be taught to consider their appearance in the kitchen.

We have now a gymnasium in Grove Cottage, and there I meet all the young ladies for exercise three times a week. Our only apparatus at present consists of wands, dumb-bells, and clubs. With these exercises are given, and also movements which require no apparatus.

Outside of my regular department, I am now hearing the first-year class in reading and the second year in elocution. As both classes entered at the same time, largely they are working for the same ends through different channels. Distinct utterance and pleasing delivery are wanted, and in the second-year class we also aim to secure an animated, interesting manner.

The first-year class are paving the way for Plane Geometry, with work in Concrete Geometry. They are gradually learning to get results by a process of simple reasoning, and the study will be a good foundation for Analytical Geometry another year.

Respectfully submitted,

HARRIET LEZLA SMITH.

REPORT OF MISS BARBER.

To the Trustees of Storrs Agricultural College:

GENTLEMEN: — During the winter and spring of '96 we have followed the plan laid out the previous term and given in my last report.

Vertical writing has been adhered to in both first and second-year work, with great advantage to both student and instructor.

The criticism of English has been less a burden than before, and the time and energy of the student has been economized.

At the beginning of each term sample papers in English are taken, and the comparison with those written later is both interesting and encouraging. "Practice," and not theory, "makes perfect," and this is most emphatically true of composition. The only way to learn to write is to write, and therefore the most valuable part of English study is constant writing under criticism. Daily writing is as necessary to acquire correct English as daily piano practice for proficiency in music. A year, or two years, will not accomplish this, and the entire college course is all too short.

At every lesson a paper is required, usually an original one. This is, most often, a detailed account of something observed by the pupil, but sometimes is varied by a reproduction or an invention. These papers are criticised and rewritten, thereby correcting mistakes by practice, which is a better teacher than any text-book.

Maxwell's "Introductory Lessons in English" was continued in the first year, while in the second the students had the benefit of several works, the essential parts of which were collected by the students in note-books. This fall I have introduced Shaw's "English Composition," which is a valuable reference for instruction that I have usually given without text-book — punctuation, letter writing, common errors, variety of expression, and sentence form, topical outline, paraphrase, abstract, essentials of sentence structure, figurative language, etc. Class analysis of sentences preceded the text-book.

Since the addition of new books to the Library I have required each student in the English class to give the story from one of these books. The whole class then wrote this story for the next English lesson. The results have been very satisfactory. Short observation stories during the term have prepared the way for and made possible this use of the books.

A valuable change in the arrangement for the first two years has recently been made. Formerly, the first-year students studied the common English branches only. This was monotonous, and not the best method of developing the mind. Now the arithmetic and history have been divided, part being taught during the second year. This has given time in the first year for some hours of Botany, Chemistry, Geometry, Physiology, and Ethics, which adds interest and incentive to the course. I can already see improvement in zeal and ambition. I am sure, also, that the parts of English subjects carried into the second year will be of more benefit, — more fully understood than if crowded into the previous space.

The time given to Algebra and Book-keeping has been increased and carried through the year, thereby giving a chance for more advanced work and better assimilation.

Respectfully submitted,

L. J. BARBER.

REPORT OF PROFESSOR PATTERSON.

To the Trustees of Storrs Agricultural College:

GENTLEMEN: — It is with pleasure that I report the results of the past year in the especial department to which I am assigned, and the marked improvement in line of new buildings, the renovation of others, and the fitting up of apparatus which has come under the supervision of this department. In the first place we would note the erection of the fine new building of colonial style designed and appropriated to the use of the female department.

Next we would note the building of a much-needed residence for a member of the faculty, which we are encouraged to believe is only the first of several which will be built in the near future. There is also a new forge-shop in process of construction, which will be equipped with a full complement of forges and tools for use in practical iron work. The two last-named buildings have been entirely under the care of the head of this department, both in design and construction, and it is hoped that the efficiency and economy of this method may be apparent. The interior of most of the other buildings has been much improved by paint, paper, etc. On the whole, this has been a marked year in our physical development.

The carpenter shop has been supplied with many new tools, and is now well equipped for hand-work. Although burdened

DRAWING CLASS

by some obstacles, class work, the past year, has reached excellent results. The second and third-year classes gave their best effort in mechanical drawing and wood-work. Owing to the removal of the old building containing our only forge, little could be done in iron-work.

My experience the past year as an instructor has been pleasant, and I look forward with much satisfaction to the use of our greatly improved conditions. At the commencement of my first year the conditions were somewhat discouraging, but I am pleased to report that mechanics is receiving increased attention and assuming its proper place in the curriculum of this institution.

Respectfully submitted,

H. S. PATTERSON,
Department of Mechanics.

REPORT OF PROF. CHAMBERLAIN.

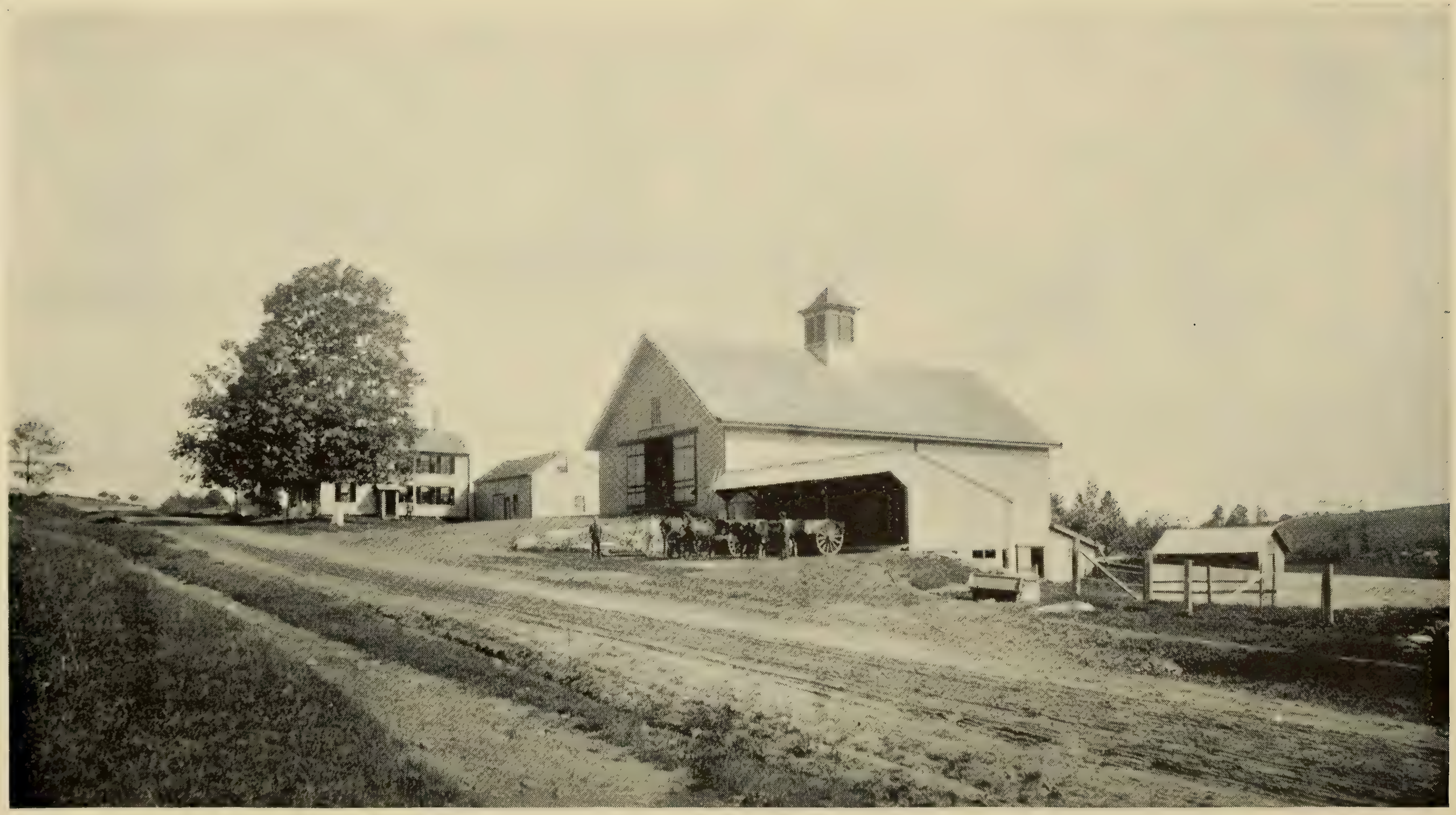
Gentlemen of the Board of Trustees:

The close of another year suggests the propriety of a brief review of the results which our work upon the farm has produced, and with the accompanying tables I herewith present to you my annual report. Your familiarity with the farm — its purposes, its methods, and its needs, makes my task all the more easy and pleasant, while your interest in its successful conduct makes effort at its improvement the more cheerful and hopeful. Within the memory of all, the original tract of one hundred and seventy acres was so nearly barren as almost to justify the disparagement which the enemies of agricultural education heaped upon it so constantly and so freely. But the impoverished soil, worn out in the struggle to produce something from nothing, has readily responded to every reasonable demand upon its productive capacity. In respect to variety of soil a better location would have been difficult to obtain. This, for all the purposes of instruction, atones fully for many a boulder which once hindered the work of cultivation and soured the temper of the cultivator. Sand and muck lie at the two extremes of soil composition. These the farm furnishes in abundance, while nearly all the intermediate soils common to New England are also present. Both these extremes of soil have long lain under the ban of a false estimate of their value, owing to natural qualities which rendered their successful cultivation more or less difficult and uncertain. Both are now taking their places in the public estimate where nature designed.

Both the lack and the excess of moisture are capable of being so modified as to contribute directly to the profit of cultivation. How this can best be done is one of the practical questions within the scope of agricultural education. Such questions we are attempting to answer. Nearly six acres of swamp land lying near the farm buildings have been wholly or in part subjugated and compelled to do their share in the farm production. While the dormant fertility of our swamp lands is commonly greatly overestimated, the ease with which they can be cropped when once civilized, renders their improvement profitable. The work of bringing this tract under cultivation, like that of removing obstructions from upland soils, requires the exercise of patience and persistence — qualities which once, more than now, distinguished New England agriculture.

Most of the farm crops, as shown in the tables below, have yielded above the average of previous years. Corn and oats have been exceptionally good. The farm, during the thirteen years of my experience in its management, has produced all the corn, as well as all of the hay it has consumed. Not a bushel of one or a ton of the other has been purchased.

The additional area of farm land recently acquired by the purchase of the Crane farm makes an aggregate of three hundred and twenty-one acres. A large proportion of this addition, including the meadows, is in a highly productive condition. This fact needs no other explanation than that it has been for a number of years a part of the Storrs estate. The advantages of this purchase to the college are many and great. During the present year two hundred barrels of choice apples have been gathered from its orchards — more than enough to furnish a liberal supply for the use of the college. It has also furnished a beautiful site for Grove Cottage, while the natural extension of the college buildings would seem to be in the same direction.



FARM HOUSE AND BARN

Quite a number of animals have been sold from the dairy to provide stable room for the fourteen thoroughbreds that have been purchased by your direction, and only those have been retained that are specially valuable.

The piggery has just been enlarged to meet the increasing capacity of the farm for the profitable rearing and feeding of swine. This department promises to become a more and more profitable source of income, both from its greater supply of food, and from the sale of surplus animals. While the East cannot compete successfully with the West in its production of pork for the general market, it cannot afford to neglect the utilization of any of its farm wastes. To produce what we consume must be our aim.

The past year has been over-crowded with such duties and labors as the enlargement of the college and its more complete equipment have demanded. But it has also brought to us the fullest compensation in hopes fulfilled, and in its promises of yet greater good.

L. P. CHAMBERLAIN,
Farm Superintendent.

CLASS AND LABORATORY WORK.

FIRST YEAR.

	No. of Hours per Week. A. M.		
	Fall Term.	Winter Term.	Spring Term.
History,	2	2	2
Arithmetic,	3	2	3
English,	4	3	2
Elocution,	1	1	1
Singing,	1	1*	1*
Ethics,	1	1	1
Botany,	1	1	0
Chemistry,	1	0	0
Physiology,	0	3	4
Geometry,	2	1	1
	16	16	16

* Optional.

LABORATORY.

	No. of Hours per Week. P. M.		
	Fall Term.	Winter Term.	Spring Term.
Botany,	1½	1½	0
Physiology,	0	1½	1½
Chemistry,	1½	0	0
Physics,	0	0	1½
	3	3	3

SECOND YEAR.

	No. of Hours per Week. A. M.		
	Fall Term.	Winter Term.	Spring Term.
History,	2	0	0
Arithmetic,	0	2	0
English,	3	2	4
Elocution,	2	0	0
Algebra,	2	2	2
History of Agriculture,	2	0	0
Poultry Culture,	0	2	0
Tillage and Tillage Implements,	0	0	2
Botany,	1	1	1
Chemistry,	1	2	2
Veterinary Anatomy,	2	2	2
Human Physiology,	0	3	0
Geometry,	2	1	2
Singing,	1	1*	1*
Ethics,	0	1	0
	18	19	16

* Optional.

LABORATORY.

	No. of Hours per Week. P. M.		
	Fall Term.	Winter Term.	Spring Term.
Botany,	1½	1½	1½
Chemistry,	0	1½	1½
Physics,	1½	0	0
Wood Shop,	0	2	0
Mechanical Drawing,	0	2	0
	3	7	3

THIRD YEAR.

	No. of Hours per Week. P. M.		
	Fall Term.	Winter Term.	Spring Term.
Horticulture,	2	3	2
Dairy Breeds,	2	0	0
Dairying,	0	2	0
Soils,	0	0	3
Veterinary *materia medica*,	2	2	2
Rhetoric,	2	2	2
General History,	0	0	2
Book-keeping,	1	1	1
Surveying,	0	1	0
Physics,	2	2	0
Organic Chemistry,	1	2	0
Civil Government,	0	0	3
Elocution,	2	0	0
	14	15	15

LABORATORY.

	No. of Hours per Week. A. M.		
	Fall Term.	Winter Term.	Spring Term.
Chemistry,	2	0	0
Dairying,	0	1½	0
Physics,	0	1½	0
Surveying,	0	0	3
Wood Shop,	0	2	0
Mechanical Drawing,	0	2	0
	2	7	3

FOURTH YEAR.

	No. of Hours per Week. P. M.			
	Summer Term.	Fall Term.	Winter Term.	Spring Term.
Horticulture,	0	3	2	2
Forage Plants,	4	0	0	0
Stock Breeding,	0	3	0	0
Cattle Feeding,	0	0	2	0
Manures and Fertilizers,	0	0	0	2
Veterinary Diseases,	0	3	0	2
English Literature,	0	2	4	4
Ethics,	0	2	0	0
General History,	0	0	1	2
Entomology,	1½	0	0	0
Geology,	0	0	2	1
Zoölogy,	0	2	0	0
Trigonometry,	0	0	2	0
Political Economy,	0	0	0	2
Chemistry,	0	0	2	0
Free-hand Drawing,	3	0	0	0
	8½	15	15	15

LABORATORY.

	No. of Hours per Week. A. M.			
	Summer Term.	Fall Term.	Winter Term.	Spring Term.
Horticulture,	3½	0	0	0
Zoölogy,	0	1½	0	0
Entomology,	3	0	0	0
Chemistry,	0	1½	0	0
Surveying,	0	0	0	2
Iron Shop,	0	0	2	0
Mechanical Drawing,	0	0	2	0
	6½	3	4	2

Time devoted to the several subjects :

MATHEMATICS.	HOURS.
Arithmetic,	132
Book-keeping,	36
Algebra,	72
Geometry,	135
Trigonometry,	36
Surveying,	67
Total,	478

English — including language, rhetoricals, composition, rhetoric, English and American literature,	435
History,	189
Botany,	105
Horticulture,	197
Agriculture,	273
Chemistry,	250
Physics,	84
Physiology,	83
Veterinary Science,	205
Entomology,	36
Zoölogy,	45
Geology,	35
Civil Government,	33
Political Economy,	22
Elocution,	73
Ethics,	36
Domestic Science, { Cooking. Sewing.	

Instruction on piano, organ, and singing, elective, tuition free.

LIST OF TEXT-BOOKS USED.

Johnson's How Crops Grow.
Armsby's Cattle Feeding.
Miles' Stock Breeding.
Avery's Inorganic Chemistry.
Remsen's Organic Chemistry.
Appleton's Qualitative Chemistry.
Quantitative Chemistry.
Kellogg's Physiology and Hygiene.
Gray's Lessons and Manual of Botany.
Thomas' American Fruit Culturist.
Dana's Text-Book of Geology.
King's The Soil.
Gage's Physics.
Laughlin's Political Economy.
Milne's Algebra.
Wentworth's Geometry.
Wentworth's Trigonometry.
Wentworth's Surveying.
Maxwell's English Grammar.
Henderson's Gardening for Profit.
Selections from Standard English Authors.
Montgomery's United States History.
Gow's Morals and Manners.
Hunt and Morrow's Soils and Crops.
Bryant & Stratton's Book-keeping.
Cole's Sight-Singing.
Waddy's Composition and Rhetoric.
Brooke's English Literature.
Mrs. Lincoln's Boston Cook-Book.
Church's Food.
Franklin's and Prince's Arithmetics.
Storer's Agriculture.
Janét's Elements of Morals.
Martin's Civil Government.

Text-books are purchased at wholesale rates, and supplied to the pupils at cost.

CONDITIONS OF ADMISSION AND EXPENSES.

Candidates must be fifteen years old, and each, by virtue of his entering the college, pledges himself to a faithful discharge of all duties, and a demeanor at all times such as becomes a gentleman.

Tuition is free, also rooms, furnished with bed, mattress, table, and chairs; the students furnishing their own pillows, bedding, and bed linen, towels, lamps, napkins for the table, etc. The only expense is board, fuel, lights, books, etc., and these are furnished at cost. The total outlay for the year is from $120 to $125, and this can be much reduced by labor. Any industrious young woman or young man may by suitable labor, the young ladies in their kitchen and dining room, and the young men on the grounds, in the gardens, barns, or on the farm, reduce the actual outlay for a year's expenses to $75.00, or even $50.00, or less.

A deposit of forty dollars ($40) at the beginning of each term will be required, to meet expenses for board, books, etc., or a guarantee of payment, signed by parent or guardian with satisfactory surety. No member of the faculty is allowed to act as surety. No one will be regarded as a pupil in the institution, or have his name entered upon the class roll, until he presents his receipt for the advanced payment, or for the deposit of his guarantee properly signed.

TERMS OF ADMISSION.

Applicants for admission must be citizens of Connecticut, and at least fifteen years of age, and pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States history.

LOCATION.

The railroad station is Eagleville, seven miles north of Willimantic, on the New London Northern (Central Vermont) road, and is reached from Hartford by the New England, and from New Haven by the Air Line to Willimantic, where the road intersects these lines.

PUBLIC WORSHIP.

Students are expected to attend college chapel daily, and church services Sunday morning. Parents or guardians may designate what church they desire their wards to attend, otherwise seats are provided in the church near the college.

UNIFORMS.

The military uniform is not obligatory, yet it is the earnest desire of the Trustees that all students supply themselves with it. It consists of a very good suit of gray, made to order, very neat and becoming, at a cost of $13.00, for coat, pants, and cap, certainly as cheap as a suit of equal quality can be purchased elsewhere.

PRIZES.

The Ratcliffe Hicks prizes of $30.00 and $20.00 for "excellence in English composition" this year, written upon the subject, "Some Important Elements of an Education," were won by Grace E. Blakeman 1st, and Howard G. Barber 2d.

COMMENCEMENT EXERCISES, WEDNESDAY, JUNE 17, 1896.

PROGRAMME.

10.30 A. M.

Music,— Priests' March,

Orchestra.

Prayer.

Music,— Village Bells.

Orchestra.

COLLEGE COURSE.

Howard G. Barber, Union.

The Power of the Ideal.

Grace E. Snow, Storrs.

Co-education.

Clayton T. Curtis, East Glastonbury.

International Arbitration.

Music,— Reign of Cupid,

Orchestra.

Albert E. Coles, Rockfall.

Iceland,— Its People and its Literature.

Olive N. Clark, Saybrook.
The College Girl in the World.

Leroy M. Tucker, Middletown.
The Relation of Animal Disease to Public Health.

Music,— Felicity Waltz,
Orchestra.

Ethel E. Freeman, Spring Hill.
Advancement of Education.

John H. Evans, Thompson.
The Beautiful in Nature.

Music,— Trio,
Gertrude, Clinton, and Cora Grant.

Ernest H. Waite, Middletown.
Entomology.

Grace E. Blakeman, Oronoque.
The Creative Power in Literature.

Music,— On Guard March,
Orchestra.

SHORT COURSE.

EXCUSED FROM READING.

Erma L. Fuller, Mansfield.
Cooking in Health and Disease.

Ralph D. Gilbert, Gilead.
Our Native Birds.

Albert C. Gilbert, Gilead.
Nitrification.

Olcott F. King, South Windsor.
Tile Draining.

AFTERNOON EXERCISES.

1.15 P. M.

Exhibition Drill of Military Company on Parade Ground.

2 O'CLOCK IN THE CHAPEL.

Music,
Orchestra.

Annual Address,
Hon. William E. Simonds.

Music.
Awarding of Prizes.
Conferring of Diplomas.
Music.

ESTIMATED INVENTORY OF PROPERTY ON HAND.

Chemical apparatus,		$350.00
Reagent bottles,		129.00
Chemicals, inorganic,		200.00
Chemicals, organic,		50 00
Physical apparatus,		600.00
Surveying instruments,		258.00
Photographic instruments,		140.00
Chemical balances (3),		185.00
		$1,912 00
Furnishing College buildings,		$2,275.00
Natural history,		450.00
Mechanical Department,—	Wood and iron shop outfit and supplies,	240.00
Number of books and pamphlets in library, 4,943.		
Horticultural Department,	Tools, etc.,	
	Greenhouse plants,	
	Tile,	
Domestic Science Department,	Kitchen laboratory,	225.00
	Sewing-room,	180.00
		$405.00
Kitchen and dining-room outfit,		775.00
Dormitories,		1,625.00
Military Department,		175.00
Horse Barn,	Horses,	250.00
	Wagons and sleds,	275.00
	Harness, blankets, etc.,	75.00

Amount and Value of Farm Products.

50	tons of upland hay,	$800.00
12	tons of swamp hay,	120.00
1½	tons of Hungarian hay,	24.00
8	tons of oats hay,	112.00
4	tons of corn stover,	50.00
1½	tons of rye straw,	18 00
3	tons of oats straw,	24.00
3	tons of bedding,	15.00
1	ton of crimson clover hay,	15.00
491	bushels of potatoes,	245.00
702	bushels of ears of corn,	175 50
58	bushels of winter turnips,	17.40
150	bushels of fall turnips,	15.00
132	bushels of oats,	39 60
30½	bushels of rye,	18.30
20	bushels of buckwheat,	14.00
5	bushels of Lima beans,	5.00
69,350	pounds of milk,	1,387.00
3,869	pounds of beef,	226.18

3,492 pounds of pork,	$190.71
1,000 pounds of squashes,	20.00
800 cabbages,	32.00
250 heads of celery,	7.50
3 calves raised,	30.00
9 fat pigs,	72.00
7 shoats,	49.00
85 tons of silage,	255.00
40 barrels of apples (from original farm),	40.00
	$4,017.69

Live Stock on Hand December 1, 1896.

2 pairs of working oxen,	$285.00
1 pair of farm horses,	100 00
3 thoroughbred Guernsey cows,	387.50
1 thoroughbred Guernsey bull,	100 00
4 thoroughbred Ayrshire cows,	500.00
1 thoroughbred Ayrshire bull,	100.00
1 grade Holstein cow,	35.00
3 grade Guernsey cows,	105.00
1 full-blood Jersey cow,	40.00
1 grade Jersey cow,	30.00
2 Guernsey-grade heifers,	45.00
4 Jersey-grade heifers,	50.00
1 fat hog,	21.00
9 fat pigs,	72.00
6 shoats,	49.00
2 breeding sows,	30.00
	$1,949.50

Estimated value of farm tools and machines,	$900.00

Labor Performed for College.

Cutting and packing ice,	$60.00
Hauling lumber and other freight,	48.50
Grading about Grove Cottage,	7.50
	$116.00

Labor performed for poultry department,	$31.25

Labor on Permanent Improvements.

Removing rocks and stones,	$41.00
Building stone wall,	29.50
Building piggery extension,	18.00
Repairing road to main building,	3.50
Improving swamp land,	55.00
	$147.00

TREASURER'S REPORT.

H. C. MILES, *Treasurer*,
In account with STORRS AGRICULTURAL COLLEGE.

DR.

1895.			
Sept.	30.	By balance of account,	$1,905.95
Oct.	1.	By cash Comptroller,	6,250.00
	24.	B. F. Koons,	4,000.00
	31.	B. F. Koons,	291.33
1896.			
Jan.	6.	Comptroller,	6,250.00
	9.	Trustees, note discounted,	3,940.00
	9.	Storrs Experiment Station,	251.75
	11.	B. F. Koons,	1,500.00
Feb	14.	B. F. Koons,	600.00
April	7.	Comptroller,	6,250.00
	11.	B. F. Koons,	1,100.00
July	3.	Comptroller,	6,250.00
	7.	Storrs Experiment Station,	60.44
	7.	B. F. Koons,	2,000.00
	16.	B. F. Koons,	37.16
	21.	Andrew Hyde,	6.25
Aug.	3.	Storrs Experiment Station,	37.62
		Ratcliffe Hicks Prize Fund,	60.00
			$40,790.32

CLASSIFICATION OF EXPENSES FOR YEAR OCT. 1, 1895 — SEPT. 30, 1896.

1895-6. CR.

Books, printing, and stationery,	$1,615.35
Postage,	91.13
Telephone,	36.35
College supplies,	136.60
Chemicals, chemical and physical apparatus,	215.19

Buildings, grounds, and repairs,	$3,051.95
Shop outfit and supplies,	38.49
Traveling expenses,	719.71
Salaries,	6,329.27
Domestic Science department,	59.39
Provisions,	3,120.48
Servant hire,	890.81
Fuel and lights,	1,385.85
Dormitory outfit,	60.14
Kitchen outfit,	73.67
Washing,	902.44
Horticultural department, labor,	1,033.68
fertilizers,	6.60
supplies,	350.64
horticultural stock,	24.67
blacksmith,	7.95
greenhouse,	34.48
Horse barn, supplies,	75.03
feed,	450.29
labor,	42.90
blacksmith,	48.60
Farm purchased,	6,000.00
Farm supplies,	146.17
labor,	697.90
feed,	457.96
fertilizers,	149.25
stock purchased,	673.50
blacksmith,	47.14
Dairy department,	89 27
Trustees' note and interest,	4,000.00
Insurance,	383.41
Legal expenses,	1,740.15
Ratcliffe Hicks prizes,	100.00
Poultry department,	503.69
Extension department,	208.83
Cottage No. 1,	1,378.45
Piano,	239.37
	$37,616.75
Balance of account,	$3,173.57
	$40,790.32

HARTFORD, Conn., December 28, 1896.

This certifies that we have examined the accounts of Henry C. Miles, Treasurer of the Storrs Agricultural College, for the fiscal year ending September 30, 1896, compared them with the vouchers, and find them correct. The balance in the hands of the Treasurer on said date was three thousand, one hundred, and seventy-three dollars, and fifty-seven cents ($3,173.57). We also examined the accounts of the special appropriation for building a girls' dormitory, and for the investigation of food economy, compared them with the vouchers, and found them correct.

E. LIVINGSTON WELLS, } *Auditors of*
JAMES A. JONES, } *Public Accounts.*

State of Connecticut.

SIXTH REPORT

OF THE

DAIRY COMMISSIONER,

MADE TO THE

GOVERNOR, A. D., 1896.

FOR THE

YEAR ENDING SEPTEMBER 30, 1896.

Ordered Printed by the Legislature.

MERIDEN, CONN.:
Press of the Republican Publishing Co.
1896.

REPORT.

To His Excellency O. Vincent Coffin, Governor of the State of Connecticut:

SIR:—In compliance with the provisions of Chapter CCXCIV, of the Public Acts of 1895, I herewith have the honor to present my first report for the fiscal year ending September 30, 1896.

As the term of my predecessor in office covered eight months of the period above mentioned, there remains but four months during which facts of note could be obtained by myself as commissioner. Yet the acquaintance with the duties and scope of this office which has been acquired, will enable the statement of some things which I believe will be of material interest.

It is to be stated at the outset, that on taking up the duties of the office, the work of my predecessor was found to have been ably and efficiently performed during the eight months he was in office.

DUTIES OF THE OFFICE.

The duties which pertain to this office, as defined by statute, are to attend to the enforcement of the laws relating to the manufacture and sale of imitation butter, and the manufacture and sale of vinegar and molasses.

The one relating to imitation butter is by far the most important.

Although these laws as mentioned above may have been familiar to most people affected by them, I thought best upon taking up the duties of the office to have copies of these laws as they stand at present, printed and mailed to every wholesale and retail dealer in the State; so that no one could complain that he did not know their provisions. The amendment to the law relating to the sale of imitation butter, prohibiting agents taking orders in the State, which was passed at the last General Assembly, upon suggestion of Commissioner Burlingame, was a wise provision, and makes the law as it now stands a very strong one.

The law as amended is herewith given as a part of this report.

LAW RELATING TO THE MANUFACTURE AND SALE OF IMITATION BUTTER.

Printed by order of the Dairy Commissioner.

SECTION 2614. Any article resembling butter in appearance and not made wholly, salt and coloring excepted, from the milk of cows, shall be imitation butter within the meaning of this chapter. The words "butter," "dairy," or "creamery," shall form neither the whole nor a part of the name of any imitation butter, or appear upon any article, or upon any box, tub, or package containing imitation butter.

SEC. 2615. No person, by himself or his agents or servants, shall render or manufacture, sell, offer for sale, expose for sale, take orders for the future delivery of, or have in his possession with intent to sell, any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same; *provided*, that nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form and in such manner as will advise the consumer of its real character, free from coloration or any ingredient that causes it to look like butter. No imitation butter shall be sold or exposed for sale or delivered except under the following conditions: First, the seller shall maintain in plain sight, over or next the main outer entrance of the premises where the selling is done, a sign bearing in plain, black Roman letters, not less than two inches wide and four inches long, on a white ground, the words "sold here," preceded by the name of the imitation article. If the selling is done from a wagon or other vehicle, such vehicle shall conspicuously bear upon its outside on both sides of said wagon or vehicle such a sign. If the delivering is done from a wagon or other vehicle, such vehicle shall conspicuously bear upon its outside on both sides of said wagon or vehicle a sign bearing in plain, black Roman letters, not less than two inches wide and four inches long, on a white ground, the words, "delivered here," preceded by the name of the imitation article. Second, all imitation butter shall be kept in an enclosing package, which shall bear on the outside of its body, and also of its cover, at all times in plain sight of a beholder of the package, in black Roman letters, not less than one inch wide and two inches long, on a white or light-colored ground, the name of the imitation article. Third, the seller shall orally inform each buyer at each sale that the article he buys is not butter, and shall give the buyer the name of the imitation article. Fourth, every person, co-partnership, or corporation selling or offering for sale any imitation butter, and every keeper of a hotel, boarding-house, or restaurant, temporary or permanent, who shall furnish any guest with any imitation butter, or food containing it, shall within fifteen days after the passage of this act, or within fifteen days after commencing said business, and annually on the first day of May, or within fifteen days thereafter, register in a book kept by the Dairy Commissioner for that purpose, the name and the town, street and number of street, of the place of business of said person, copartnership, corporation, keeper of hotel, boarding-house, or restaurant. All signs prescribed in sections 2615, 2616, and 2617 of the general statutes shall be provided by the Dairy Commissioner, and all signs required, under provisions of section 2615 of the general statutes, to be maintained in plain sight over or next the main outer entrance of the premises where the selling is done, shall be placed in position under the direction of the Dairy Commissioner or his deputy. All signs so furnished by the Dairy Commissioner shall be paid for by the parties receiving the same, the same to be furnished at the actual cost thereof.

SEC. 2616. No baker or vendor of food shall sell or expose for sale any article of food containing imitation butter unless such baker or vendor shall maintain the same kind of a sign as hereinbefore first prescribed in the way and manner prescribed in that connection, except that the word "used" shall be sustituted for the word "sold." If the selling be done from a wagon, or other vehicle, such vehicle shall conspicuously bear such a sign.

SEC. 2617. No keeper of a hotel, boarding-house, or restaurant, temporary or permanent, shall furnish any guest with any imitation butter, or food containing it, unless such keeper shall maintain in plain sight of all guests sitting at tables where food is served such a sign or signs as hereinbefore prescribed, except that the word "used" shall be substituted for the word "sold."

SEC. 2618. The Governor shall appoint a citizen of the State as a Dairy Commissioner, who shall hold office for two years from and after the first day of May succeeding his appointment, and until his successor is appointed, unless sooner removed by the Governor for cause, and in case of his death, resignation, or removal, the Governor shall fill the vacancy. It shall be the duty of the Dairy Commissioner to attend to the enforcement of this chapter throughout the State. A room in the Capitol shall be set apart for the Dairy Commissioner. He may appoint and remove a deputy, who may also act as clerk. The Dairy Commissioner and his deputy shall have free access, at all reasonable hours, for the purpose of examining into any suspected violation of this chapter, to all places and premises, apartments of private families, keeping no boarder excepted, where the Dairy Commissioner or his deputy suspects imitation butter to be made, sold, or used ; and on tender of the market price of good butter for the same may take from any person, firm, or corporation, samples of any articles suspected to be imitation butter. The Dairy Commissioner may have samples suspected to be imitation butter analyzed at the Connecticut Experiment Station, or by any State chemist, and a sworn or affirmed certificate after analysis shall be *prima facie* evidence of the ingredients and constituents of the sample analyzed. Any one refusing the Dairy Commissioner or his deputy access in a reasonable manner, and at a reasonable time, to premises for said purpose of examination, or refusing to sell samples as hereinbefore provided for, shall incur the penalty hereinafter first provided for violations of this chapter. The Dairy Commissioner shall make an annual report to the Governor, and such annual report shall be submitted to the general assembly at its regular session.

SEC. 2619. Any person violating any of the provisions of sections 2614, 2615, or 2616, and any person, except a boarding-house keeper, violating section 2617 shall for the first offense be fined not more than one hundred dollars or imprisoned not more than sixty days, or both; for any subsequent offense said fine and imprisonment shall be doubled. Any boarding-house keeper violating section 2617 shall for the first offense be fined twenty-five dollars or imprisoned not exceeding thirty days, or both ; for any subsequent offense said fine and imprisonment last mentioned shall be doubled. Evidence of any violation of this chapter shall be *prima facie* evidence of willful violation with knowledge.

Approved, May 18, 1893, March 28, 1895.

Some of the time during the four months of the present administration of the office has been devoted to looking into suspected violations of the law ; some parts of the field have been carefully looked over. Samples have been taken of suspicious butter, and where it was deemed necessary they have been sent to the Connecticut Experiment Station for analysis. The summer months are not altogether a favorable period of the year for the selling of imitation butter, as then the quantity of pure butter is greater and the price is lower ; hence the inducement to sell the imitation product is not as strong. But from observations made thus far, it may be said that there have been instances, two at least, where information pointed to the fact that parties were mixing oleomargarine with genuine butter and offering it for sale. While after careful effort sufficient legal proof could not be obtained to warrant prosecution, the cases have been under constant watch to prevent any further attempt to violate the law. It may be mentioned that since the 30th day of September last, more time has been given to the search, both for the illegal production and the illegal sale of imitation butter.

Since the first law in regard to selling adulterated butter was enacted in 1886, and the amendments have been passed which occasion called for, the sales of oleomargarine and butterine have gradually diminished, which bears testimony both to the wisdom of the law and the prudence and vigilance of those whose duty it has been to see to its enforcement.

There are now no persons, firms or corporations within the borders of the State engaged in the manufacture of this imitation butter. *Four retail dealers have taken out United States licenses and are selling uncolored oleomargarine ; they are registered at this department and have signs as required by law.

The imitation product having been most entirely driven from our State, its place has been largely taken by the native product, supplied from our farms and creameries, and a constant and growing demand has been created for pure butter.

OLEOMARGARINE MANUFACTURE.

The following interesting tabular statements are taken from the last report of the United States Commissioner of Internal Revenue :

It appears from the subjoined table that the average monthly production of oleomargarine under the operations of the law has been as follows :

	Pounds.
During the eight months ended June 30, 1887	2,711,828
During the fiscal year ended June 30, 1888	2,860,460
" " " " 1889	2,972,002
" " " " 1890	2,693,669
" " " " 1891	3,699,367
" " " " 1892	4,030,346
" " " " 1893	5,602,024
" " " " 1894	5,801,853
" " " " 1895	4,746,508

It also appears that the average monthly quantity withdrawn from factories on payment of the tax was as follows :

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*Since the date of this Report, two have taken out United States licenses.

	Pounds.
During the month ended June 30, 1887	2,592,946
During the fiscal year ended June 30, 1888	2,707,430
“ “ “ “ 1889	2,821,970
“ “ “ “ 1890	2,566,494
“ “ “ “ 1891	3,601,292
“ “ “ “ 1892	3,909,625
“ “ “ “ 1893	5,371,989
“ “ “ “ 1894	5,508,004
“ “ “ “ 1895	4,469,686

The average quantity withdrawn monthly for exportation during the same time is shown to have been as follows:

	Pounds.
During the eight months ended June 30, 1887	90,566
During the fiscal year ended June 30, 1888	140,516
“ “ “ “ 1889	145,746
“ “ “ “ 1890	134,866
“ “ “ “ 1891	102,426
“ “ “ “ 1892	107,981
“ “ “ “ 1893	232,124
“ “ “ “ 1894	283,890
“ “ “ “ 1895	278,123

OPERATIONS IN OLEOMARGARINE DURING THE LAST TWO FISCAL YEARS.

The following statement by districts shows the quantity in pounds of oleomargarine produced at manufactories, the quantity withdrawn therefrom tax-paid, for export and for exposition purposes, and the quantity lost or destroyed at manufactories during the two fiscal years ended June 30, 1894, and June 30, 1895, respectively; also the stock remaining on hand at the close of each year:

From July 1, 1893 to June 30, 1894.

DISTRICT.	Returned to Factory.	Produced.	Withdrawn Tax Paid.	Withdrawn for Export.	Lost or Destroyed.	Withdrawn for Exposition Purposes.	Remaining in Factory June 30, 1894.
First California	....	173,613	159,847	10,750	....	....	7,740
Connecticut, *a*	....	8,545,296	6,068,395	2,443,643	....	....	33,258
First Illinois	678	40,967,122	40,537,905	415,956	739	228	256,865
Sixth Indiana	....	1,460,861	1,475,613	....	470	....	13,606
Fourth Iowa	....	112,426	110,335	....	4,370	....	....
Kansas, *b*	....	10,102,185	9,912,487	114,612	....	....	75,086
Sixth Missouri	....	1,136.835	1,146,996	....	....	....	23,166
Nebraska, *c*	....	3.476,350	3,475,780	570	....	....	....
Eleventh Ohio	....	724,747	721,141	....	.. ..	....	5,606
Eighteenth Ohio	....	2,246,078	2,249,739	....	....	....	4,199
First Pennsylvania	....	676,733	237,820	421,152	....	....	17,761
Total	678	69,622,246	66,096,058	3,406,683	5,579	228	437,287

a Including the State of Rhode Island. No oleomagarine was manufactured in the State of Connecticut.

b Including the Indian Territory and the Territory of Oklahoma; but no oleomagarine was manufactured in either of these Territories.

c Including the States of North Dakota and South Dakota; but no oleomagarine was manufactured in either of these States.

FROM JULY 1, 1894 TO JUNE 30, 1895.

DISTRICT.	Returned to Factory.	Produced.	Withdrawn Tax Paid.	Withdrawn for Export.	Lost or Destroyed.	Withdrawn for Exposition Purposes.	Remaining in Factory.
First California	....	223,389	197,710	29,380	4,039	....	....
Connecticut, *a*	....	9,029,269	6,403,535	2,641,407	....	....	17,585
First Illinois	100	31,903,871	31,554,541	356 871	4,580	100	244,744
Sixth Indiana	....	653,263	663,642	....	....	....	3,227
Fourth Iowa	....	....	....	....	....	....	....
Kansas, *b*	....	7,189,335	7,110,898	73,990	19,448	....	60,085
Sixth Missouri	....	1,013.544	991,327	....	....	....	45,383
Nebraska, *c*	....	3,009,830	3,004,230	5,600	....	....	....
Eleventh Ohio	....	1 552,292	1,549 010	....	....	....	8,888
Eighteenth Ohio	....	1,828,199	1,818,903	....	....	....	5,495
First Pennsylvania	....	563,113	342,446	230,238	....	....	8,190
Total	100	56,958,105	53,636,242	3,337,486	28,067	100	393,597

a Including the State of Rhode Island. No oleomargarine was manufactured in the State of Connecticut.

b Including the Indian Territory and the Territory of Oklahoma; but no oleomargarine was manufactured in either of these Territories.

c Including the States of North Dakota and South Dakota; but no oleomargarine was manufactured in either of these States.

OLEOMARGARINE RECEIPTS.

RECEIPTS UNDER THE OLEOMARGARINE LAW DURING THE FISCAL YEAR ENDED JUNE 30, 1895.

DISTRICTS.	Collections on Oleomargarine at Two Cents Per Pound.	Manufactures.	Retail Dealers.	Wholesale Dealers.	Total.
Alabama	....	....	$862 90	$320 00	$1,182 90
Arkansas	....	....	1.788 00	600 00	2,388 00
First California, *a*	$4,654 60	....	536 00	1,440 00	6,630 60
Fourth California	....	....	....	....	....
Colorada, *b*	....	....	3,698 00	3,200 00	6,978 00
Connecticut, *c*	127,841 84	$3,000 00	16,994 00	4,640 00	152,475 84
Florida	....	....	3,980 00	2,920 00	6,900 00
Georgia	....	....	1,466 00	2,320 00	3,786 00
First Illinois	626,735 94	2,650 00	54,525 00	4,400 00	688,310 94
Fifth Illinois	....	....	3,148 00	2,320 00	5,468 00
Eighth Illinois	....	....	3,490 00	960 00	4,450 00
Thirteenth Illinois	....	....	1,332 00	....	1,332 00
Sixth Indiana	12,952 34	600 00	4,683 00	960 00	19,195 34
Seventh Indiana	....	....	1,762 00	....	1,762 00
Third Iowa	....	....	238 00	780 00	1,018 00
Fourth Iowa	....	....	....	948 00	948 00
Kansas, *d*	138,447 88	600 00	5,258 00	240 00	144,545 88
Second Kentucky	....	....	196 00	....	196 00
Fifth Kentucky	....	....	1,768 00	800 00	2,568 00
Sixth Kentucky	....	....	2,118 00	960 00	3,078 00
Seventh Kentucky	....	....	696 00	....	696 00

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a Including the State of Nevada.

b Including the State of Wyoming.

c Including the State of Rhode Island.

d Including the Indian Territory and Territory of Oklahoma.

OLEOMARGARINE RECEIPTS.—(CONTINUED.)

RECEIPTS UNDER THE OLEOMARGARINE LAW DURING THE FISCAL YEAR ENDED JUNE 30, 1895.

DISTRICTS.	Collections on Oleomargarine at Two Cents per Pound.	Manufactures.	Retail Dealers.	Wholesale Dealers.	Total.
Eighth Kentucky	....	....	$56 00	....	$56 00
Louisiana, *e*	....	....	2,908 00	$1,620 00	4.528 00
Maryland, *f*	....	....	5,786 00	2,280 00	8,066 00
Massachusetts	....	....	7,146 00	10,520 00	17,666 00
First Michigan	....	....	14,626 00	5,280 00	19.906 00
Fourth Michigan	....	....	3,164 00	1,720 00	4,884 00
Minnesota	....	....	1,268 00	3,400 00	4,668 00
First Missouri	....	....	10,784 00	3,680 00	14,464 00
Sixth Missouri	$20,342 16	....	4,784 00	480 00	25.606 00
Montana, *g*	....	....	2,976 00	5,440 00	8,416 00
Nebraska, *h*	59,831 22	$600 00	2,292 00	660 00	63,383 22
New Hampshire, *i*	....	....	1,552 00	1,160 00	2,712 00
First New Jersey	....	....	1,002 00	....	1,002 00
Fifth New Jersey	....	....	6,730 00	1,240 00	7,970 00
New Mexico, *k*	....	....	554 00	720 00	1,274 00
First New York	....	....	1,234 00	....	1,234 00
Second New York	4 50	....	140 00	1,680 00	1,824 50
Third New York	....	....	796 00	960 00	1.756 00
Fourteenth New York	....	....	1,082 00	....	1,082 00
Twenty-first New York	....	....	28 00	....	28 00
Twenty-eighth New York	....	....	40 00	480 00	520 00
Fourth North Carolina	....	....	465 33	....	465 33
Fifth North Carolina	....	....	208 00	....	208 00
First Ohio	....	....	5,246 00	2,880 00	8,126 00
Tenth Ohio	....	....	616 00	....	616 00

Eleventh Ohio	31,114 06	600 00	3,076 00		34,790 06
Eighteenth Ohio	36,458 42		9,542 00	2,720 00	48,720 42
Oregon, *l*	9 96		1,198 00	1,760 00	2,967 96
First Pennsylvania	6,799 86	600 00	1,000 00	1,860 00	10,259 86
Ninth Pennsylvania			608 00		608 00
Twelfth Pennsylvania			1,028 00	720 00	1,748 00
Twenty-third Pennsylvania	20 46		18,357 55	5,800 00	24,178 01
South Carolina			932 00	1,200 00	2,132 00
Second Tennessee			292 00	480 00	772 00
Fifth Tennessee	15 00		1,184 00	504 00	1,703 00
Third Texas			2,102 00	4,280 00	6,382 00
Fourth Texas			1,240 00	1,720 00	2,960 00
Second Virginia			2,138 00	880 00	3,018 00
Sixth Virginia			200 00		200 00
West Virginia	65 16		3,248 00	2,720 00	6,033 16
First Wisconsin			2,900 00	920 00	3,820 00
Second Wisconsin		300 00	2,168 00	2,080 00	4,548 00
Total	$1,065,293 40	$8,950 00	$236,183 78	$98,784 00	$1,409,211 18

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e Including the State of Mississippi.

f Including the State of Delaware, District of Columbia and two Counties of Virginia.

g Including the State of Idaho, and the Territory of Utah.

h Including the States of North Dakota and South Dakota.

i Including States of Maine and Vermont.

k Including the Territory of Arizona.

l Including the State of Washington and Territory of Alaska.

OLEOMARGARINE PRODUCTION AND TOTAL RECEIPTS.

The following table of production and total receipts from all oleomargarine sources for each fiscal year since November 1, 1886, the date of oleomargarine law took effect, is interesting as showing the extent of operations in the country:

	Produced. Pounds.	Received.
On hand November 1, 1886	181,090	
During the fiscal year ended June 30.		
1887 (From November 1, 1886)	21,513,537	$723,948 04
1888	34,325,527	864,139 88
1889	35,664,026	894,247 91
1890	32,324,032	786,291 72
1891	44,392,409	1,077,924 14
1892	48,364,155	1,266,326 00
1893	67,224,298	1,670,643 50
1894	69,622,246	1,723,479 90
1895	56,958,105	1,409,211 18
Total	410,569,425	$10,416,212 27

There are facts to be deduced from the above statistics. 1st. The production of oleomargarine in this country—though during the last fiscal year it has decreased somewhat, and this in a measure commensurate with the general business depression—yet during the period extending from 1886 to the present time has more than doubled. 2nd. That large quantities of oleomargarine are produced in States near or contiguous to our own. 3d. That the present existing State law operates as a barrier against the influx of imitation butter from other States to the markets of our own, and it is certain that if the present law, either as to its provisions or its enforcement, were relaxed, that just in that proportion would the opportunity be given to producers of oleomargarine in other States to ship that article into this State, or a commodity of which that is the principal ingredient. So that there is need at all times that the Connecticut farmer shall have his honest product kept free as possible from competition with spurious productions which in other States stand ready, as the above cited statistics show, to come at every opportunity over our borders.

There is found upon the market a large quantity of cheap creamery butter which is quite suspicious to say the least. Upon investigation, it has been found that western tub butter is taken and marked over and made up into creamery prints ; this is given some high standing creamery name and put upon the market as creamery butter.

There is at present no law to prevent it, but it is plain that there are large numbers of consumers deceived by it.

DAIRY INTERESTS OF THE STATE.

Connecticut has been classed as one of the manufacturing States of our union, still its agricultural interests are very large, and more particularly those which pertain to the dairy product of the State.

This industry represents a large amount of capital both in plants and labor employed in the production and distribution of milk, butter and cheese. The latter representing only a small fraction of the sum total.

The following estimate in regard to the number of cows and their product in the United States is taken from "Statistics of the Dairy," issued by the United States Department of Agriculture for the year 1896.

Cows—Millions.	Product.	Rate of Product.	Total Product.
11	Butter.	125 lbs.	1,375,000,000 lbs.
5	Milk.	350 gals.	1,750,000,000 gals.
1	Cheese.	280 lbs.	280,000,000 lbs.

This represents a grand total value of the dairy product of the United States of nearly $500,000,000. Connecticut's part in this great industry is of practical interest to us as dairyman. Pleasure is taken in the fact that great progress has been made in our State all along these lines.

The following statement taken from the same source as above, and the United States Census, show the advance that has been made during the last fifty years in number of cows kept and the production of milk and butter in our State.

Year.	No. Cows.	Milk—Gallons.	Butter—Pounds.	Average Yield per Cow of Milk.—Gal.
1850	85,461		6,498,119	301.3
1860	98,877		7,620,912	290.9
1870	98,889	6,253,259	6,716,007	277.2
1880	116,319	12,289,893	8,418,906	325.4
1890	127,892	54,413,822	10,369,259	425.4

The decrease in the cheese product of the State during this period was quite large. This was brought about undoubtedly by the introduction of the creamery system of butter making.

The first creamery was established in the year 1868, but the system did not obtain an important position in the State until a a much later period.

In the last ten years their growth has been quite rapid, until now we have sixty (60) creameries either co-operative or proprietary. A large portion of these are situated in the central part of the State, more milk being sold in eastern and western counties, which is sent by rail to New York and Boston.

No one can question but what the creamery system has been a great motive power in advancing the dairy industry of our State.

Attention is called with great satisfaction to the average milk yield per cow given in the last table, while the average yield in 1860, per cow was only 277.2 gallons, in 1890 it was 425.4 gallons; this means better cows all through the State.

In connection with this, attention is called to the fact that in the District of Columbia where the largest percentage of pure bred cows in the United States is found, the largest average milk production is obtained, 533 gallons per cow, while in places having the lowest average percentage of pure breeds, the lowest average yield is obtained, 38.78 gallons per cow.

CONNECTICUT CREAMERY ASSOCIATION.

The following are the officers of the Connecticut Creamery Association, together with the Constitution and By-Laws:

President, J. E. Leonard, Jewett City.

Vice-President, E. R. Russell, Suffield.

Secretary and Treasurer, Frank Avery, Wapping.

DIRECTORS.

H. P. Deming, Riverton.
W. R. Goodspeed, E. Haddam.
E. D. Hammond, Cromwell.
A. M. Bancroft, Melrose.
D. E. Phelps, Windsor.
B. F. Case, Canton Centre.
J. E. Sanford, Redding.

CONSTITUTION.

This Association shall be known as THE CONNECTICUT CREAMERY ASSOCIATION.

MEMBERSHIP.

ARTICLE I.

Any Creamery organization or individual engaged in the manufacture of butter may become a member of this Association upon the payment of two dollars ($2.00) and subscribing to the Constitution and By-Laws.

ARTICLE II.

The officers of this Association shall consist of a President, Vice-President, Secretary and Treasurer, and eight Directors, to be elected by ballot. The President, Vice-President and Secretary and Treasurer to be also members of the Board of Directors.

ARTICLE III.

The annual meeting of this Association shall be held on the second Wednesday of January, 1893, at which meeting the election of the officers shall be held. Notices of all meetings of this Association shall be mailed to each member.

BY-LAWS.

ARTICLE I.

Section 1. The regular meeting of the Board of Directors shall be held quarterly; on the second Wednesday of January and on the third Wednesday of April, July and October.

Sec. 2. Not less than five (5) members of the Board of Directors shall constitute a quorum at any regular meeting for the transaction of business, and a majority of those present shall decide all questions, including applications for membership.

ARTICLE II.

It shall be the duty of the Secretary to keep the minutes of the proceedings of each meeting of the Association and of the Board of Directors; he shall issue all notices of meetings, receive and refer to the Directors all applications for membership; he shall qualify himself to give any information upon topics and matters connected with the manufacture and sale of butter; he shall have the custody of the books, records and other property of the Association, and for his services shall receive such compensation as may be voted by the Directors; he shall also receive all fees and dues for membership, hold the custody of all moneys, and shall keep a correct account of all funds of the Association and shall only pay out said moneys upon bills bearing the approval of the President.

ARTICLE III.

There shall be an Auditing Committee of two members of the Association who shall be appointed by the President, who shall audit the accounts of the Secretary and Treasurer and report to the Association at their annual meeting.

ARTICLE IV.

A special meeting may be called by the Secretary whenever in the judgment of the President and Secretary it may seem necessary, giving each Director five days' notice.

The list of creameries of this State, together with their products as near as can be ascertained is, for the past year as follows:

Creameries.	Prest. or Supt.	Address.	Pounds.
Andover,	J. A. Jagger,	Hebron,	132,884
Aspetuck,	W. B. Hatch,	Northville,	52,068
Avon,	Lewis A. Bonnell,	Avon,	54,362
Brooklyn,	W. S. Wilcox,	Brooklyn,	50,000
Canton,	Benjamin F. Case,	Canton Centre,	144,196
Chapinville,	George Martin,	Chapinville,	61,722
Cheshire,	Edward Shinners,	Meriden,	15,673
Clover Farms,	J. Bartlett Sandford	Redding,	77,505
Colchester,	W. P. Adams,	West Chester,	84,709
Cornwall,	T. S. Gold,	West Cornwall,	
Cromwell,	E. D. Hammond,	Cromwell,	74,951
Danbury,	L. H. Boughton,	Danbury,	27,000
Durham,	C. F. Bartholomew,	East Wallingford,	55,168
East Canaan,	E. J. Roberts,	East Canaan,	78,721
Eastford,	Ira Cushman,	Eastford,	35,894
East Granby,	L. R. Lobdell,	East Granby,	42,037
East Haddam,	W. R. Goodspeed,	Goodspeeds,	47,853
East Hampton,	George K. White,	East Hampton,	34,741
Echo Farm,	John S. Palmer,	Litchfield,	64,601
Ellington,	A. M. Bancroft,	Melrose,	192,000
Elmwood,	Charles M. Beach,	Hartford,	8,000
Farmington,	A. R. Wadsworth,	Farmington,	46,067
Glastonbury,	E. H. Andrews,	Glastonbury,	75,145
Golden Ridge,	Francis Deming,	Berlin,	59,519
Goshen,	Lyman Hall,	West Goshen,	69,806
Granby,	Henry J. Dewey,	Granby,	186,734
Green's Farm Ass'n,	J. H. Jennings,	Westport,	13,200
Highland,	Timothy Sedgwick,	West Hartford,	53,050
Jewett City,	J. E. Leonard,	Jewett City,	89,462
Lebanon,	A. G. Kneeland,		299,034
Mansfield,	J. B. Brown,	Merrow,	91,956
Mountain Spring,	Henry Page,	Durham,	6,500
Northford,	G. H. Ives,	Northford,	31,319
Oak Shade,	C. F. Porter,	Cheshire,	31,300
Old Lyme,	A. G. Mathews,	Black Hall,	23,000
Plainville,	Hiram Carter,	Plainville,	72,925
*Pomfret,	T. M. Totman,	Pomfret Landing,	62,000

Creameries.	Prest. or Supt.	Address.	Pounds.
Ridgefield,	J. C. Holmes,	Ridgefield,	53,799
Riverside,	Horace Patten,	Warehouse Point,	81,333
Riverside Jersey,	Donald McNeil,	Higganum,	3,380
Scotland,	J. D. Kimball,		47,555
Suffield,	E. A. Russell,	Suffield,	144,562
Simsbury,	A. R. Shepard,	West Simsbury,	90,375
Somers,	E. B. Little,	Somers,	72,793
South Britain,	Hollister Sage,	South Britain	
Spring Brook,	S. M. Wells,	South Wethersfield,	45,279
Tangerank,	W. H. Hillard,	North Stonington,	35,749
Thompson,	L. A. Logee,	Thompson,	30,000
Torrington,	G. C. Ives,	West Torrington,	105,437
Turnerville,	P. N. Turner & Sons,	Turnerville,	15,431
Tunxis,	H. P. Deming,	Riverton,	166,500
§ Valley Farm,	L. G. Hemingway,	New Haven,	35,476
Vernon,	A. W. Annis,	Rockville,	48,631
Wallingford,	P. J. Boland,	Wallingford,	35,000
Wapping,	Frank Avery,	Wapping,	182,308
Windsor,	I. N. Hayden,	Windsor,	124,389
Winsted,	E. Manchester & Son	West Winsted,	4,900
¶ Woodstock,	Abel Child,	Woodstock,	28,087

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* Burned in November.

§ Sells milk and cream; butter made from surplus.

¶ Uses cream for ice cream five months in the year and makes butter the other seven months.

The managers of the creameries of the State, have by their courtesy, enabled me to present some interesting facts regarding the creameries at this time, and also showing the increase in their business.

BROOKLYN CREAMERY.

The Brooklyn Creamery began business on May 1st,. 1888, with Charles G. Williams, President; P. B. Sibley, Secretary; and Superintendent, C. S. Burlingame. The number of Patrons then was 30, and the estimated number of cows 275.

The capital stock is $3,750; the number of patrons 53; and the estimated number of cows 400. They use the Babcock test, and have made during the past year 50,000 pounds of butter, of which 40,000 pounds were sold in the State and 10,000 pounds out of the State.

The officers of this creamery are President, A. B. Webb; Secretary, William R. Thurbur; and Superintendent, W. S. Wilcox.

CANTON CREAMERY.

When the Canton Creamery began business in 1878, Gaylord Barber was president, H. P. Bidwell, Secretary and Superintendent.

E. N. White now is President; Secretary and Superintendent, Benjamin F. Case.

The amount of capital stock is $3,675.00, and the number of patrons 100, and the estimated number of cows 600 to 700. They use the Babcock test, and for the year ended December 31st, 1895 the number of spaces of cream received was 613,500; from which was made 144,196 pounds of butter, all of which is sold in this State.

During the time above stated the following number of pounds of butter were made each month: Jan., 11,976; Feb., 12,357; March, 15,154; April, 13,466, May, 15,753; June, 14,788; July, 12,933; Aug., 11,374; Sept., 9,588; Oct., 9,955; Nov., 8,227; Dec., 8,625. The aggregate amount paid to patrons was $28,912.71.

CHESHIRE CREAMERY.

In 1875 the Cheshire Creamery began business.

The officers at the present time are President E. A. Atwater; Secretary, Edgar Beadle and Manager Edward Shinners.

The amount of capital stock is $2,000, and the number of patrons 16, and the number of cows 115.

They use the space system, and the average monthly production of butter is 1,425 pounds, which with the quantity of cream sold would make the amount of butter capable of being produced at this creamery equivalent to 1,840 pounds of butter.

The total annual production of 15,673 pounds of butter is sold in this State.

The aggregate amount paid to patrons is $5,500.

COLCHESTER CREAMERY.

Colchester Creamery was organized in 1886, with a capital stock of $3,750.00, and J. E. Hall as President; C. H. Norton, Secretary, and D. S. Bigelow, Superintendent.

The number of patrons the first year was 71 and the estimated number of cows 576.

They received 492,255 spaces of cream, from which was made 72,358 pounds of butter, and about seven-eights of this was sold in this State.

The aggregate amount paid to patrons that year was $14,653.19; the sales of cream amounted to $172.35 and the sale of buttermilk to $150.38. The sales of cream during the past year amount to $167.44 and the sales of buttermilk to $154.50. The present officers of this creamery are J. E. Hall, President; S. E. Williams, Secretary, and William P. Adams, Superintendent. The number of patrons is 75 and the estimated number of cows is 600.

The number of spaces of cream received during the past year was 394,612, and the number of pounds of cream received was 119,713. The Babcock test is used, and the number of pounds of butter made during each month of the year is as follows: 1895, Aug., 7,259; Sept., 6,160; Oct., 5,833; Nov., 5,382; Dec., 5,827; 1896, Jan., 6,769; Feb., 6,757; March, 7,068; April, 6,927; May, 9,327; June, 9,583; July, 7,807, of which 53,394 pounds were sold in the State and 31,315 pounds out of the State, making in all a total of 84,709 pounds.

The aggregate amount paid to patrons was $14,930.32.

DANBURY CREAMERY.

The amount of capital stock of the Danbury Creamery is $3,000, and its President is Jeremiah Mead; Secretary and Superintendent, L. H. Boughton.

The space system is used and the entire product of 27,000 pounds of butter made yearly at this place is sold in the State.

EAST CANAAN CREAMERY.

East Canaan Creamery Co., began operation in 1894, breaking ground in March and was ready to receive cream April 30th. It was organized with a capital stock of $3,500. President, C. H. Sage; Secretary and Treasurer, E. S. Roberts; Superintendent, E. S. Roberts. It has two cream routes, each extending out about ten miles from the creamery.

The number of patrons when it began business was 28 with an estimated number of 300 cows. They are using the space system, and from April 30th, '94 to November 1st, '94 they received 112,372 spaces of cream, from which was made 28,867 pounds of butter. During the first full year they made 69,172 pounds of butter, all of which was sold in the State. The amount paid their patrons for the first year was $5,990.01. Although this creamery is situated within two miles of a milk shipping point, they have built up a good business in the short time they have been running. The present year they retain the same officers as when organized. The number of patrons have increased to 52, with an estimated number of 500 cows.

They have received 545,319 spaces of cream and made 78,721 pounds of butter, all of which has been sold in the State. The amount paid patrons the present year was $14,192.53.

EASTFORD CREAMERY.

The officers of the Eastford Creamery when it was organized in 1887, were: President, S. O. Bowen; Secretary and Superintendent, C. O. Warren.

The capital stock is $2,975 and the present officers are: S. O. Bowen, President; Secretary, C. M. Jones, and Superintendent, Ira B. Cushman. The number of patrons is 50 and the estimated number of cows is 400. They use the Babcock test and for the year ended October 31, 1896, there was received 180,234 pounds of cream, and from this was made 35,894 pounds of butter. There was sold in the State about 17,847 pounds of butter and nearly the same amount out of the State. The aggregate amount paid to patrons was $6,342.29.

EAST HAMPTON CREAMERY.

East Hampton Creamery has a capital stock of $3,000 and its officers are: President, Henry T. Sellew; Secretary, George K. White; Superintendent, George K. White. The number of patrons is 40 and the estimated number of cows 400.

The space system is used and the number of spaces of cream received for the year ending July 1, 1896 was 239,739, from which there was made each month the following number of pounds of butter: July, 1895, 3,500; August, 2,700; September, 2,100; October, 2,000; November, 2,100; December, 2,200; January, 1896, 2,600; February, 2,600; March, 2,700; April, 3,400; May, 4,400; June, 4,500, making in all 34,741 pounds. Of this amount there was sold in this State 26,041 pounds, and out of this State 8,700 pounds. The aggregate amount paid to patrons was $6,200.

ELLINGTON CREAMERY.

The Ellington Creamery for the year 1895 received 1,356,067 spaces of cream, from which was made 214,106 pounds of butter. The total income was $56,477.50 and the total expenses $9,281.16. The amount paid to patrons was $47,326.73.

For the year 1896 the number of spaces of cream received at this thriving creamery was 1,214,439, and from this was made 192,000 pounds of butter, and the amount paid to patrons was $38,861.88. It is evident that this creamery is one of the largest in the State, and it may be stated that under the able and efficient management of A. M. Bancroft its growth has been rapid and extensive.

FARMINGTON CREAMERY.

The Farmington Creamery was organized in 1868.

Its president then was W. M. Wadsworth and its secretary E. Norton.

Mr. Chauncey Deming is President; Mr. A. R. Wadsworth, Secretary, and H. L. Crandall, Superintendent.

The amount of capital stock is $4,500, and the number of patrons 36, and the estimated number of cows is 480. The Babcock test is used the present time.

The number of pounds of butter-fat received during the year ending January 29th, 1896, was 61,000, and the number of pounds of butter made was 46,067, all of which was sold in this State. The amount paid to patrons was $14,764.

It is to be remarked that this creamery, located near the beautiful street of Farmington in the town that bears its name, is the pioneer creamery of this State, and its butter has always stood high in the market.

GLASTONBURY CREAMERY.

The Glastonbury Creamery Co. had the following officers in 1895:

President, James S. Williams; Secretary and Treasurer, Henry E. Loomis; Manager, W. E. Gates; Butter Maker, H. W. Lathrop.

DIRECTORS.—E. H. Andrews, Wallace L. Hale, Henry Moseley, Otis Talcott, D. N. Cornwall, J. S. Williams, S. P. Turner.

AUDITORS.—S. C. Hardin, C. O. Talcott.

The annual meetings of this company are held the first Monday of March and the regular Directors' meetings the last Saturday of each month.

The present officers are: President, E. H. Andrews; Secretary, Henry E. Loomis, and Superintendent, Henry Moseley.

The amount of capital stock is $3,700, and this creamery was organized in 1886, the space system is used and the number of patrons the first year was 13.

The following is a table taken from the report of the Secretary of this creamery for the year 1895, showing the number of patrons, the spaces of cream received, the pounds of butter made each month, and the amount paid to patrons, etc., etc.

1895	Number of Patrons.	Number of Spaces Received.	Number of Pounds of Butter Made.	Number of Spaces per Pound.	Cents per Space.	Equivalent to Cents per Pound.	EXPENSES.
							Paid Patrons.
January	51	38,434	5,794	6.63	3.5	23.20	$1,345.06
February	51	36,807	5,492	6.63	3.5	23.20	1,288.13
March	52	41,763	6,362	6.56	3.0	19.87	1,252.89
April	52	42,756	6,546	6.53	2.74	17.89	1,171.51
May	54	49,762	7,701	6.59	2.7	17.79	1,343.57
June	54	47,028	7,456	6.32	2.9	18.32	1,363.81
July	55	45,462	6,916	6.56	3.0	19.68	1,363.86
August	55	39,939	6,178	6.46	3.2	20.67	1,278.04
September	54	36,342	5,489	6.62	3.3	21.84	1,199.28
October	54	38,147	5,791	6.59	3.5	23.06	1,335.14
November	54	37,395	5,493	6.81	3.4	23.15	1,271.43
December	54	40,131	5,927	6.77	3.4	23.02	1,364.45
Total or Av.	....	493,966	75,145	6.58	3.18	20.97	$15,577.17

1895.	RECEIPTS.		
	For Butter.	Butter-milk and Incidentals.	Total.
January	$1,604.93	$ 4.41	$1,609.34
February	1,517,06	10.22	1,527.28
March	1,540.75	5.39	1,546.14
April	1,455.12	4.37	1,459.49
May	No returns.		1,749.56
June			1,699.01
July			1,740.42
August			1,606.28
September			1,515.28
October			1,621.48
November			1,495.72
December			1,683.46
Total or Average			$19,253.46

GOLDEN RIDGE CREAMERY.

Golden Ridge Creamery of Berlin was organized April 1, 1890, with a capital stock of $3,000. Daniel Webster was chosen President and Francis Deming Secretary and Superintendent.

The number of patrons the first year was 20, and the estimated number of cows 150. They received 172,311 spaces of cream, from which was made 26,639 pounds of butter, all of which was sold in the State.

The aggregate amount paid patrons that year was $5,477. The present year of 1896 finds this creamery with William H. Webster as President and Francis Deming as Secretary and Superintendent. The number of patrons is 38, with an estimated number of cows of 300. They are using at present the Babcock test and have made during each month of the year the following amount of butter: 1895, November, 4,227; December, 3,795; 1896, January, 3,898; February, 4,351; March, 3,820; April, 4,358; May, 4,844; June, 6,151; July, 6,784; August, 5,827; September, 5,342; October, 5,122, all of which has been sold in the State and have paid their patrons $12,000.49.

GRANBY CREAMERY.

The Granby Creamery had its beginning in June, 1882, with Wallace Kendall as President; A. S. Corwas, Superintendent and Secretary.

The officers now are President, George O. Beach; Secretary, S. F. Holcomb; Superintendent, Henry J. Dewey.

The capital stock is $3,525 and the number of patrons 156. The Babcock test is used and the number of pounds of cream received was 780,195½ for the year ending November 1, 1896, and the number of pounds of butter made each month during the time above stated is as follows: November, 1895, 12,087; December, 12,015; January, 1896, 12,311; February, 11,901; March, 14,434; April, 13,742; May, 20,789; June, 20,527; July, 19,157; August, 16,936; September, 16,729; October, 17,106.

The total number of pounds of butter made for the year was 186,734, all of which was sold in the State, and the aggregate amount paid to patrons was $33,578.92.

GREEN'S FARMS CREAMERY.

The President of the Green's Farms Creamery is J. H. Jennings, and Secretary, W. H. Burr.

The amount of capital stock is $2,500, and the number of patrons 25, and the estimated number of cows, 100.

The number of pounds of butter made each month is 1,100, and the amount of butter for the year is 13,200 pounds.

This creamery was organized in 1891, and although Green's Farms is not a dairy section of the State, this creamery aims to furnish first class butter to patrons.

HIGHLAND CREAMERY.

The Highland Creamery was organized in 1877; and had then T.

Sedgwick for its Secretary. Its capital stock is $3,200, and its officers are: President, Franklin Sisson; Secretary and Superintendent, T. Sedgwick.

The number of patrons of this creamery is 20, and the estimated number of cows 225. The space system is used and for the year ending July 1st, 1896 the number of spaces of cream received was 368,374. The average monthly production of butter at this creamery is 4,420 5-6 pounds, the highest being in June, which was 6,108 pounds, and the lowest in February, which was 3,384. All of the butter made was sold in the State. The aggregate amount paid to patrons, $11,536.05. The amount of butter made for the year was 53,050 pounds.

JEWETT CITY CREAMERY.

The Jewett City Creamery has a capital stock of $4,000, and was organized in 1888 with Geo. A. Rose as President; Frank E. Robinson, Secretary, and A. C. Ladd, Superintendent.

The number of patrons the first year was 27 to 53, and the number of spaces of cream received, 315,357, the number of pounds of butter made being 45,248.

The number of patrons of this creamery at the present time are 35 to 40 and the estimated number of cows is 300 to 375. The space system is used and also the Babcock test, but not for paying. The number of spaces of cream received is 563,163, and the quantity of butter produced for the past year, 89,462 pounds, and the amount paid to patrons $18,690.89.

The present officers are Simon Brewster, President; Superintendent and Secretary, J. E. Leonard.

LEBANON CREAMERY.

Lebanon Creamery began operations in 1885 and its number of patrons that year was 60.

The officers are, President, I. Gillett; Secretary and Superintendent, A. G. Kneeland. The amount of the capital stock is $3,400 and the number of patrons 180, the estimated number of cows 1,600. At this large creamery they use the space system and also the Babcock test. For the year ending December 31, 1895, the number of spaces of cream received at this creamery reached to 2,008,777 and the amount of butter produced to the remarkable number of 299,034 pounds.

The number of pounds of butter sold in the State during the above mentioned period was 199,356 and out of the State 99,678. The aggregate amount paid to patrons was $66,963.61.

OLD LYME CREAMERY.

The Old Lyme Creamery is a proprietary creamery and is located at Black Hall, and Matthew Griswold is its proprietor, and A. G. Matthews is superintendent.

The amount invested in this creamery is $5,500; the estimated number of patrons is 20 and the number of cows 100. This creamery uses the space system, and the butter is sold about one-third in the State, and about two-thirds out of the State.

PLAINVILLE CREAMERY.

Mr. H. Tyler is President, and Hiram Carter, Superintendent and Secretary, of the Plainville Creamery. The amount of capital stock is $3,000, and the number of patrons is 44.

This creamery uses the space system, and for the year ending January, 1895, the number of spaces of cream received was 486,888. The amount of butter produced was 72,925 pounds and aggregate amount paid to patrons was $14,657.72.

RIVERSIDE CREAMERY.

Joseph A. Pascoe was President, and H. W. Patten Secretary of the Riverside Creamery when organized in April, 1888.

The number of patrons the first year was 34 and the estimated number of cows, 200; while the number of spaces of cream received was 391,224; from this was made 61,500 pounds of butter and the aggregate amount paid to patrons was $13,438.12.

The above mentioned gentlemen are the present officers of this creamery and the capital stock is $4,000.

For the year ending Oct. 31st, 1896, the number of patrons was 54 and the estimated number of cows 300.

The space system is used. The number of spaces of cream received during the period stated was 504,043, and from this the following number of pounds of butter per month were made: 1895, Nov., 6,184; Dec., 6,149; 1896, Jan., 7,106; Feb., 6,234; March, 6,918; April, 6,771; May, 7,946; June, 7,276; July, 7,050; Aug., 6,420; Sept., 6,402; Oct., 6,877; making in all a total of 81,333 pounds, of which there was sold in this State 63,104 pounds, and out of this State 18,229 pounds. The aggregate amount paid to patrons was $15,681.33.

SCOTLAND CREAMERY.

Scotland Creamery, organized in April, 1888, confined its efforts to the production of cheese until September 1, 1893.

Its first officers were: President, A. S. Chapman; Secretary, Charles A. Brown; Superintendent, A. S. Chapman.

This creamery began to make butter November 15, 1893.

The number of patrons was 20 and the number of spaces of cream received was 187,647. The number of pounds of butter made the first year was 30,762½, of which 15,381 pounds were sold in this State and the same quantity out of the State. The capital stock is $1,800 and the number of patrons is 35 and the estimated number of cows 225.

The space system is used, and the average monthly production of butter is 3,963 pounds, and the amount produced during the past year is 47,555 pounds, and the aggregate amount paid to patrons is $9,202.19.

SPRING BROOK CREAMERY.

The Spring Brook Creamery was started as a proprietary creamery in 1885, and was made a stock company in 1887.

The officers now are: President, S. M. Wells; Secretary, George W. Harris, and Superintendent, H. W. Hershell. The amount of capital stock is $3,000 and the number of patrons 25 and the estimated number of cows 250. They use the space system, and for the year ending September 30, 1896, the number of spaces of cream received was 323,652 and the number of pounds of butter made each month during this period is as follows: 1895, October, 3,194; November, 2,903; December, 3,180; 1896, January, 3,551; February, 3,368; March, 4,272; April, 4,091; May, 5,019; June, 4,929; July, 4,160; August, 3,334; September, 3,278. The total number of pounds produced was 45,279 pounds. The aggregate amount paid to patrons was $9,051.20.

SUFFIELD CREAMERY.

The Suffield Creamery commenced business December 1st, 1888, with E. A. Russell as President; Geo. F. Kendall, Secretary; and E. A. Russell, Superintendent. The first year the number of patrons on an average per month was about 50 and the estimated number of cows 500. The Babcock test is used. For the year ending January 1st, 1896, the number of pounds of cream received at this creamery was 678,346, from which was made 144,562 pounds of butter, about one-half of the product being sold in the State.

The aggregate amount paid to patrons was $29,239.69, while the aggregate amount paid patrons when the creamery began business was $19,275.67. The number of spaces of cream received the first year was 628,581, and from it was made 92,769 pounds of butter, and about half of the same was sold in the State.

The officers of this creamery are: President, Arthur Sykes; Secretary, Geo. F. Kendall; Superintendent, E. A. Russell, and the capital stock is $5,500.

TORRINGTON CREAMERY.

The Torrington Creamery is a proprietary creamery and is owned by Geo. C. Ives, who does the business by the pound for the patrons. The number of patrons is 80 and the estimated number of cows 600. They use the Babcock test, and the number of pounds of cream received for the year ending March 31st, 1896, was 461,952, from which was made 105,437 pounds of butter. The aggregate amount paid to patrons was $21,969.69.

TURNERVILLE CREAMERY.

The Turnerville Creamery is a proprietary creamery, and its proprietor is P. W. Turner. The estimated number of cows is 93. They use the Babcock test, and the number of pounds of cream received for the year ending October 31st, 1896, was 89,808; from this was made each month the following number of pounds of butter: 1895, Nov., 882; Dec., 1,075; Jan., 1896; 1,046; Feb., 1,031; March, 1,107½; April, 1,099; May, 1,576; June, 1,630; July, 1,463; Aug., 1,469; Sept., 1557; Oct. 1,556.

Of this there was sold in the State 11,302½ pounds, and out of the State 4,129 pounds. It may also be stated that from 25 to 30 quarts per day of milk have been sold by this creamery, besides the milk that goes to the production of butter.

TUNXIS CREAMERY.

The Tunxis Creamery began its business in 1889, with C. H. Tiffany as President; M. A. Hart, Superintendent and Secretary.

The capital stock is $3,000, and the officers are: President, C. H. Tiffany; Secretary and Superintendent, H. P. Deming.

The first year of its progress it had 34 patrons, an estimated number of cows of 240 and received 316,580 spaces of cream, from which was made 49,680 pounds of butter, and of this there was sold in the State 40,000 pounds, and out of the State 9,680 pounds; the aggregate amount paid to patrons then being $8,461.03. This creamery now has 100 patrons, and an estimated number of cows of 850. They use the Babcock test, and received for the year ended February 28th, 1896, 776,347 spaces of cream, and made therefrom 166,500 pounds of butter, and of this there was sold in the State 145,000 pounds, and out of the State 21,500 pounds, and the aggregate amount paid to patrons was $31,752.69.

VALLEY FARM CREAMERY.

The Valley Farm Creamery is a proprietary creamery, and its proprietor is Leverett G. Hemmingway.

The chief business of this creamery is wholesale and retail trade in milk and cream, butter being made only from the surplus cream. The number of patrons is about 40 and the estimated number of cows is between 600 and 700. They do not use the space system at this creamery, but use the Babcock test. All of the butter made is sold in the State. This creamery began business in 1885.

VERNON CREAMERY.

The Vernon Creamery organized for work January 1, 1889, with Frederick Walker as President; F. R. Tucker, Secretary and Superintendent. The capital stock is $3,675, the number of patrons 34, and the estimated number of cows is 250. They use the space system at present, but expect soon to use the Babcock test. The number of spaces of cream received during the year ending September 30, 1896, was 324,297 and the number of spaces of cream sold was 7,260. The number of pounds of butter made each month during the year ending as above stated was as follows: 1895, October, 4,006; November, 3,550; December, 3,727; 1896, January, 3,727; February, 3,983; March, 4,000;

April, 4,111; May, 4,154; June, 4,785; July, 4,950; August, 3,995; September, 3,565.

The number of pounds sold in the State was 44,600 and the number of pounds sold out of the State was 4,031, and the aggregate amount paid to patrons was $9,252.50.

The present officers of this creamery are President, E. H. Lathrop of Vernon; Secretary, M. C. Annis, and Superintendent, A. W. Annis of Rockville.

WINDSOR CREAMERY.

On March 21, 1885, the Windsor Creamery was organized and Daniel J. Ellsworth was its President; N. W. Hayden, Secretary, and George W. Barnes, Superintendent. The capital stock of this creamery is $4,700, and the present officers are President, D. Ellsworth Phelps; Secretary, I. N. Hayden, and Superintendent, R. H. Knowles.

The number of patrons is 75 and the estimated number of cows is 589. They use the Babcock test, and received for the year ending December 31, 1895, 566,380 pounds of cream, from which was made 124,389 pounds of butter, 75 per cent. of which was sold in this State, and 25 per cent. out of the State. The aggregate amount paid to patrons was $26,648.70.

WINSTED CREAMERY.

The Winsted Creamery is a proprietary creamery and is owned by E Manchester & Sons. It started business in 1880. This creamery uses its entire cream in the manufacture of ice cream from April 15th to September 15th of each year. The number of patrons is 2 and the estimated number of cows is 65. The space system is used and the Babcock test at intervals. The number of pounds of butter made each month is 700 and in addition to this a large quantity of cream is sold. All the output is sold in town.

WOODSTOCK CREAMERY.

The Woodstock Creamery was organized July 4, 1888, with Abel Child as President; Secretary, L. J. Wells, and Superintendent, Abel Child. The capital stock is $3,000 and the present officers are: President, Abel Child; Secretary, F. H. Sumner, and Superintendent Abel Child. The number of patrons the first year was 48 and the estimated number of cows 225. The number of patrons now is 25 and the estimated number of cows 225.

They use the Babcock test at this creamery.

WAPPING CREAMERY.

Wapping Creamery is situated in the town of South Windsor, Hartford County. It was organized in 1883 with a capital stock of $3,500. Its officers were : Oliver Clark, President; Henry Grant, Secretary; H. W. Ladd, Superintendent. It started under the Cooley system of raising cream and has always continued it. It has paid on the basis of the spaces received until last year when it adopted the Babcock test system of paying. This creamery is situated in a fine dairy section of the State, and has been quite successful from the start. Its patrons now number nearly 100, with an estimated number of 800 cows. The last year, under the space system, they received 1,140,676 spaces of cream and made an average of 15,099 pounds of butter a month, and an aggregate of 181,188 pounds for the year. The amount which the patrons received was the large sum of $40,581.46.

This creamery ranks as one of the very large creameries of the State.

The presnt officers are : Oliver Clark, President; C. J. Dewey, Secretary; Frank Avery, Superintendent.

CONNECTICUT DAIRYMEN'S ASSOCIATION.

The dairy interests of the State have been farther advanced by the State Dairymen's Association which was organized several years ago, and in 1889 was incorporated by an Act of the Legislature. The object of this association as stated in the first article of the constitution is to improve the dairy and related interests in the State.

OFFICERS OF THE ASSOCIATION.

President, S. M. Wells, Wethersfield.
Vice-President, I. W. Stark, Lebanon.
Sec. and Treas., W. I. Bartholomew, Putnam.

DIRECTORS.

J. S. Kirkham, Newington.
Charles W. Lee, Coventry.
J. B. Noble, East Windsor Hill.
H. E. Savage, East Berlin.
George E. Manchester, West Winsted.
Hubert F. Potter, Montowese.
T. S. Gold, West Cornwall.
A. R. Wadsworth, Farmington.

This association has a large membership from all parts of the State, and the annual winter meetings are of great interest.

The following is the programme of the last annual meeting, January 21–23, 1896.

PROGRAM.

TUESDAY, January 21, 1896.

9:00 A. M.—Arranging of Exhibits in Exhibition Hall.
Renewals of Memberships and Admission of New Members.

10:30 A. M.—Address of Welcome,
By the Mayor, Hon. Leverett Brainard.
Response, - - - - By the President.
Address, - - By His Excellency, O. Vincent Coffin.

11:00 A. M.—"Breed and Feed in Dairying,"
Prof. W. H. Brewer, Yale University.

1:30 P. M.—Testing and Scoring of the Exhibits.
Judges: George A. Fales and Orin Douglas.
Reports of Secretary and Treasurer.
Election of Officers and Transaction of Business.

2:30 P. M.—"The Summer Feeding of Dairy Cows,"
Prof. C. S. Phelps, Agriculturist, Storrs.

WEDNESDAY, January 22.

9:30 A. M.—Meeting of Board of Managers.

10:30 A. M.—"The Dairy Cow of To-day,"
Valancey E. Fuller, New York.

11:30 A. M.—"Stabling of Cattle," - R. S. Hinman, Stevenson.

1:30 P. M.—"Recent Additions to Our Knowledge of the Relation of Bacteria to Cream Ripening,"
Prof. W. H. Conn, Wesleyan University.

2:15 P. M.—"The Dairy Farmer and the Pure Food Law,"
Dr. E. H. Jenkins,
Vice-Director Conn. Ag. Expt. Station.

7:30 P. M.—Annual Banquet at United States Hotel.

THURSDAY, January 23.

10:00 A. M.—Announcement of Awards.

10:30 A. M.—"Invisible Friends of the Farmer,"
Prof. I. P. Roberts,
Director Col. of Agriculture, Cornell University.

11:30 A. M.—"How to Compute the Cost of a Pound of Butter,"
F. H. Stadtmueller, Elmwood.

1:30 P. M.—"The Milk Used in Our Cities and Villages,"
George M. Whitaker,
Executive Officer Mass. Dairy Bureau.

2:30 P. M.—"The Amount Transported to Neighboring Cities,"
Hon. Heman O. Averill, Washington Depot.

VINEGAR.

LAW IN RELATION TO ITS MANUFACTURE AND SALE.

Printed by order of the Dairy Commissioner.

SECTION 1. No person shall make and sell, or make for sale, as cider vinegar, any vinegar not produced wholly from the juice of apples. No person shall add to any vinegar, or to any article sold or to be sold as vinegar, any drug, any hurtful or foreign substance, any coloring matter, or any acid other than acetic. Any person violating this section of this act shall be fined fifty dollars for a first offense, and for a second or later offense he shall be fined one hundred dollars and imprisoned thirty days.

SEC. 2. No person shall make and sell, or make for sale, any vinegar not having an acetic acidity equivalent to the presence therein of not less than four per centum by weight, of absolute acetic acid, and in case of cider vineger, not less than two per centum by weight of cider vinegar solids upon full evaporation over boiling water. No maker of vinegar shall sell the same without conspicuously branding, stenciling, or painting upon the head of the barrel, cask, keg, or package containing the same, the name of the maker, his residence or place of manufacture, and in the case of cider vinegar, the words "cider vinegar"; *provided*, that this clause concerning marking shall not apply to retail sales, at the place of manufacture, in quantities of less than five gallons, and in open packages. Any person violating this section of this act shall be fined ten dollars for a first offense, and for a second or later offense, fifty dollars.

SEC. 3. No person shall sell, or offer, or expose for sale, or exchange, or solicit, or receive any order for the sale or delivery within this state, or for delivery without this state for shipment into this state: first, any vinegar, as cider vinegar, not wholly produced from the juice of apples; or second, any vinegar, or article sold, or to be sold as vinegar, in which has been added any drug, or any hurtful or foreign substance, or any coloring matter, or any acid other than acetic; or third, any vinegar not having an acetic acidity equivalent to the presence therein of not less than four per centum by weight of absolute acetic acid, and in case of cider vinegar, not less than two per centum by weight of cider vinegar solids upon full evaporation over boiling water; or fourth, any vinegar made in this state and purchased by the person last mentioned, of the maker, in a barrel, cask, keg, or other package not branded, stenciled, or painted as required by a previous section of this act. Any person violating this section of this act shall be fined ten dollars for a first offense, and for a second or later offense fifty dollars. The delivery of any of the above-mentioned articles upon any order solicited or received within this state shall be conclusive evidence that the order upon which such delivery was made, was for such articles, and shall render the person soliciting or receiving such order liable to the penalty above prescribed.

SEC. 4. It shall be the duty of the Dairy Commissioner to attend to the enforcement of this act; and, for the purpose of examining into suspected violations thereof, he shall at all reasonable hours have free access to all places and premises where he suspects that any provision of this act is violated, and on tender of the market price of good vinegar therefor, he may take from any person, firm or corporation, samples of vinegar which he suspects of being made or sold in violation of this act; and he may himself analyze such samples, or have such samples analyzed by any State chemist, or by the experiment station; and a sworn or affirmed certificate by such analyst shall be *prima facie* evidence of the ingredients and constituents of the sample analyzed; and if such analysis shall show that such sample does not conform to any requirement of this act, and shall give the Dairy Commissioner reasonable ground for belief that any provision of this act has been violated, he shall make complaint to the proper prosecuting officer, to the end that the violator may be prosecuted.

SEC. 5. Any person refusing the Dairy Commissioner, or his deputy, access, in a reasonable manner and at a reasonable time, for said purpose of examination, or refusing to sell samples, as hereinbefore provided, shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both. Evidence of any violation of this act shall be *prima facie* evidence of willful violation with knowledge.

Approved, March 29,–June 21, 1889.

This law relating to the manufacture and sale of vinegar is one of interest to the large number of consumers of this article in the State and also to a large number of agriculturists. Many of the farms of the State produce large quantities of apples, and a portion of the profit of this product comes from the sale of cider vinegar if the law protects them in its manufacture and sale.

This law has received due attention during the year. Since I assumed the duties of this department, about sixty (60) samples from the different parts of the State have been taken, and submitted for analysis to the Connecticut Agricultural Experiment Station. The report of the analysis of these samples has shown quite a percentage of adulterations.

Those parties were immediately notified by personal visitations of their sale of the illegal product, and warned that any further attempt to sell a spurious grade would be followed by prosecution.

The sales stopped at once.

It is to be mentioned that samples of vinegar purporting to be "apple vinegar" or "cider vinegar," which was sold by agents without the State to dealers within the State, were taken in several localities, and were found to be nearly without solids in every instance. This vinegar was sold by the agents under a written guarantee to the dealer as to quality and grade.

The sales of this foreign product were at once prohibited, and there are now no sales of it by any of the dealers who formerly handled it. Manifestly the sale of such imitation vinegar was an injury to the market as respects the production and sale of the native cider vinegar, and in the future a sharp watch will be kept on any agents who come from other States to palm off a fraudulent product on the Connecticut consumer.

The existing law is not in all respect adequate to the object at which it aims. The law defines cider vinegar and requires in order to be sold as such that "it must have an acetic acidity equivalent to the presence therein of not less than four per centum, by weight of absolute acetic acid, and of not less than two per centum, by weight of cider vinegar solids upon full evaporation over boiling water." It also requires that such vinegar shall be marked "cider vinegar" together with the name of the maker and his residence and place of manufacture. The law permits the sale of all other vinegar, provided the same has four percentum of acetic acid, and is properly marked, branded and stenciled, with name and residence of the maker.

It forbids the sale of all vinegar having any drug or any hurtful or foreign substance or any coloring matter or any acid other than acetic.

We believe that in order to make the law more effective, that all vinegar offered for sale in this State, should be branded with the kind of vinegar which the cask contains, and all dealers within the State should be obliged to brand such product as is purchased without the State.

There seems to be a number of instances where persons are selling acid vinegar with some kind of coloring matter added which is almost impossible to detect by analysis; this coloring matter is added to give it the appearance of "cider vinegar," and doubtless many who purchase this suppose they are getting the genuine article, and are misled.

We believe that the law should state that all vinegar should be sold in its natural color; that acid vinegar should be sold white, and that no vinegar should be sold colored in imitation of pure cider vinegar. Thus the chance of a misleading product gaining the advantage over the real product made strictly from apples would be reduced.

And we would respectfully recommend to the incoming Legislature such action as will give ample protection to the producers and consumers of pure cider vinegar in our State.

MOLASSES.

LAW IN RELATION TO ITS SALE.

Printed by order of the Dairy Commissioner.

SEC. 2620. It shall be the duty of the Dairy Commissioner to attend to the enforcement of the law against the adulteration of molasses and the sale of adulterated molasses, and, for the purposes of examining into suspected violations of such law, he shall, at all reasonable hours, have free access to all places and premises where he suspects that molasses is adulterated, or adulterated molasses is sold, and, on tender of the market price of good molasses for the same, he may take from any person, firm, or corporation, samples of molasses which he suspects is adulterated, and he may have samples of molasses suspected to be adulterated analyzed by any State chemist, or by the Experiment Station, and a sworn or affirmed certificate of such analyst shall be *prima facie* evidence of the ingredients and constituents of the samples analyzed; and if such analysis shall show that the molasses is adulterated, he shall make complaint to the proper prosecuting officer, that the person or persons who adulterated said molasses, or sold or exposed for sale such adulterated molasses, may be prosecuted.

SEC. 2621. Any person refusing the Dairy Commissioner or his deputy access, in a reasonable manner, and at a reasonable time for said purpose of examination, or refusing to sell samples, as hereinbefore provided, shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both.

SEC. 2622. Any person who shall adulterate any molasses, or who shall sell, or offer or expose for sale, or who shall solicit or receive any order for the sale or delivery within this State, or for delivery without this state for shipment into this State, of any molasses adulterated with salts of tin, terra alba, glucose, dextrose, starch, sugar, corn syrup, or other preparation of, or from starch, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both. The delivery of any of the above mentioned preparations, upon any order solicited or received within this State, shall be conclusive evidence that the order, upon which such delivery was made, was for such articles, and shall render the person soliciting or receiving such order liable to the penalty above prescribed.

Approved, June 21, 1889.

This law has received considerable attention. During the year samples have been taken in four of the Counties of the State.

Several of these samples proved, upon analysis at the Connecticut Experiment Station, not to be pure molasses, but a mixture containing dextrose or other preparation of, or from starch.

Some of the dealers from whom these adulterated samples were taken, proved to be men of good standing in business, who had purchased the molasses in good faith and supposed they were selling pure goods.

Upon being notified, they at once stopped the sale of the impure goods; and upon my receiving the shipping bill when the goods were sent out of the State, all charges against them ceased. There are two cases which are not settled and prosecution will be made if copies of their shipping bills are not received soon.

All samples taken from the wholesale dealers of the State were found to be pure goods. Most, if not all, of the adulterated molasses seems to reach the State through the retail dealers, who make their purchases from wholesale dealers in surrounding States. The call for cheap molasses during the depression in business has no doubt increased the sale of impure and adulterated molasses.

As time permits, all of the State will be visited, and the provisions of the law be enforced with all dealers.

Attention was called by Commissioner Burlingame in his able report, to the molasses which is put upon the market from which most of the sugar has been taken; there is at the present time some of this molasses offered for sale in the State, and no law to prohibit it. We believe the present law should be strengthened in this particular as this article is of little value.

MILK.

Although milk and and the law relating to its supply does not strictly come within the province of this department, it is a subject of great importance to all dairymen in the State, and to nearly every inhabitant of the State as a consumer.

The present law in regard to milk is as follows:

LAWS TO PREVENT THE ADULTERATION OF MILK.

SECTION 2658. Whoever shall knowingly sell, supply, or bring to be manufactured to any butter or cheese manufactory in this State any milk diluted with water, or adulterated by the addition of any foreign substance, or from which any cream or milk commonly known as strippings, has been taken; or whoever shall knowingly bring or supply milk to any butter or cheese manufactory that is tainted or partly sour, shall forfeit not less than twenty-five, nor more than one hundred dollars, with costs of suit, for the benefit of the person or persons upon whom such fraud shall be committed.

SEC. 2659. The usual test for quality and the certificate of analysis of the director of the Connecticut Agricultural Experiment Station, shall be deemed *prima facie* proof of adulteration.

SEC. 2660. No person shall sell, offer, or expose for sale any milk from which the cream or any part thereof has been removed, without distinctly and durably affixing a label, tag, or mark of metal in a conspicuous place upon the outside, and not more than six inches from the top of every can, vessel, or package containing such milk, and such metal label, tag, or mark shall have the words "Skimmed Milk" stamped, printed, or indented thereon in letters not less than one inch in height, and such milk shall only be sold or retailed out of a can, vessel, or package so marked.

SEC. 2661. No person shall sell, or offer for sale, or shall have in possession with intent to sell, or offer for sale, any impure or adulterated milk.

SEC. 2662. Every person who shall violate any of the provisions of the two preceding sections shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both.

SEC. 2663. A printed notice of this and five preceding sections shall be conspicuously posted in all public places, creameries, or factories where milk is received or sold.

SEC. 2664. Any person who shall knowingly sell, or expose for sale, milk, or any product of milk, from any cow which shall have been adjudged by the Commissioners upon Diseases of Domestic Animals, affected with tuberculosis, or other blood disease, shall be fined not more than seven dollars, or imprisoned not more than thirty days, or both.

The production and distribution of milk has received a good deal of thought and attention during the last few years, and there is quite a feeling in some parts of the State in favor of a broader law than the present one.

Hartford is the only city in our State that has all of its milk supply under thorough inspection.

The city consumes about 26,000 quarts a day; all the peddlers are licensed and any attempt at adulteration is soon discovered by its efficient inspector.

Milk, as an article of food is of great importance, and every one desires to be assured that they are receiving a pure, sweet, health-giving article. Milk from unhealthy or diseased cows no one wants, and the sanitary conditions surrounding its supply should be such as would make it free from any danger of contamination from disease, lurking germs, or poisonous bacteria.

The State Board of Health at its meeting in August appointed a Committee to confer with the Dairy Commission in regard to milk legislation.

Since the date of this report a committee of dairymen have been appointed to act with the Board of Health and Dairy Commissioner in this matter. It is believed that the time is soon coming when some legislation will be asked for by the people of the State in regard to inspection of the milk supply.

CHEESE.

The following is the Filled Cheese law passed at the last session of Congress, together with the regulations under it. While the production of cheese is not large in Connecticut at the present time it may be of interest to many to know the provisions of this law.

FILLED CHEESE LAW.

AN ACT Defining cheese, and also imposing a tax upon and regulating the manufacture, sale, importation and exportation of "filled cheese."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purposes of this Act, the word "cheese" shall be understood to mean the food product known as cheese, and which is made from milk or cream and without the addition of butter, or any animal, vegetable, or other oils or fats foreign to such milk or cream, with or without additional coloring matter.

SEC. 2. That for the purposes of this Act certain substances and compounds shall be known and designated as "filled cheese," namely, All substances made of milk or skimmed milk, with the admixture of butter, animal oils or fats, vegetable, or any other oils, or compounds foreign to such milk, and made in imitation or semblance of cheese.

SEC. 3. That special taxes are imposed as follows:

Manufacturers of filled cheese shall pay four hundred dollars for each and every factory per annum. Every person, firm, or corporation who manufactures filled cheese for sale shall be deemed a manufacturer of filled cheese. Wholesale dealers in filled cheese shall pay two hundred and fifty dollars per annum. Every person, firm, or corporation who sells or offers for sale filled cheese in the original manufacturer's packages for resale, or to retail dealers as hereinafter defined, shall be deemed a wholesale dealer in filled cheese. But any manufacturer of filled cheese who has given the required bond and paid the required special tax, and who sells only filled cheese of his own production, at the place of manufacture, in the original packages, to which the tax-paid stamps are affixed, shall not be required to pay the special tax of a wholesale dealer in filled cheese on account of such sales.

Retail dealers in filled cheese shall pay twelve dollars per annum. Every person who sells filled cheese at retail, not for resale, and for actual consumption, shall be regarded as a retail dealer in filled cheese, and sections thirty-two hundred and thirty-two, thirty-two hundred and thirty-three, thirty-two hundred and thirty-four, thirty-two hundred and thirty-five, thirty-two hundred and thirty-six, thirty-two hundred and thirty-seven, thirty-two hundred and thirty-eight, thirty-two hundred and thirty-nine, thirty-two hundred and forty, thirty-two hundred and forty-one, thirty-two hundred and forty-three of the Revised Statutes of the United States are, so far as applicable, made to extend to and include and apply to the special taxes imposed by this section and to the persons, firms, or corporations upon whom they are imposed: *Provided*, That all special taxes under this Act shall become due on the first day of July in every year, or on commencing any manufacture, trade, or business on which said tax is imposed. In the latter case the tax shall be reckoned proportionately from the first day of the month in which the liability to the special tax commences to the first day of July following.

SEC. 4. That every person, firm, or corporation who carries on the business of a manufacturer of filled cheese without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than four hundred dollars and not more than three thousand dollars; and every person, firm, or corporation who carries on the business of a wholesale dealer in filled cheese without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than two hundred and fifty dollars nor more than one thousand dollars; and every person, firm, or corporation who carries on the business of a retail dealer in filled cheese without having paid the special tax therefor, as required by law, shall, besides being liable for the payment of the tax, be fined not less than forty nor more than five hundred dollars for each and every offense.

SEC. 5. That every manufacturer of filled cheese shall file with the collector of internal revenue of the district in which his manufactory is located such notices, inventories, and bonds, shall keep such books and render such returns of materials and products, shall put up such signs and affix such number to his factory, and conduct his business under such surveillance of officers and agents as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation require. But the bond required of such manufacturer shall be with sureties satisfactory to the collector of internal revenue, and in a penal sum of not less than five thousand dollars; and the amount of said bond may be increased from time to time, and additional sureties required, at the discretion of the collector or under instructions of the Commissioner of Internal Revenue. Any manufacturer of filled cheese who fails to comply with the provisions of this section or with the regulations herein authorized, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than five hundred nor more than one thousand dollars.

SEC. 6. That filled cheese shall be packed by the manufacturers in wooden packages only, not before used for that purpose, and marked, stamped, and branded with the words "filled cheese" in black-faced letters not less than two inches in length, in a circle in the center of the top and bottom of the cheese; and in black-faced letters of not less than two inches in length in line from the top to the bottom of the cheese, on the side in four places, equidistant from each other; and the package containing such cheese shall be marked in the same manner, and in the same number of places, and in the same description of letters as above provided for the marking of the cheese; and all sales or consignments made by manufacturers of filled cheese to wholesale dealers in filled cheese or to exporters of filled cheese shall be in original stamped packages. Retail dealers in filled cheese shall sell only from original stamped packages, and shall pack the filled cheese when sold in suitable wooden or paper packages, which shall be marked and branded in accordance with rules and regulations to be prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury. Every person who knowingly sells or offers to sell, or delivers or offers to deliver, filled cheese in any other form than in new wooden or paper packages, marked and branded as hereinbefore provided and as above described, or who packs in any package or packages filled cheese in any manner contrary to law, or who falsely brands any package or affixes a stamp on any package denoting a less amount of tax than that required by law, shall upon conviction thereof be fined for each and every offense not less than fifty dollars and not more than five hundred dollars, or be imprisoned not less than thirty days nor more than one year.

SEC. 7. That all retail and wholesale dealers in filled cheese shall display in a conspicuous place in his or their sales room a sign bearing the words "filled cheese sold here" in black-faced letters not less than six inches in length, upon a white ground, with the name and number of the revenue district in which his or their business is conducted; and any wholesale or retail dealer in filled cheese who fails or neglects to comply with the provisions of this section shall be deemed guilty of a misdemeanor, and shall on conviction thereof, be fined for each and every offense not less than fifty dollars and not more than two hundred dollars.

SEC. 8. That every manufacturer of filled cheese shall securely affix, by pasting on each package containing filled cheese manufactured by him, a label on which shall be printed, besides the number of the manufactory and the district and state in which it is situated, these words: "Notice.—The manufacturer of the filled cheese herein contained has complied with all the requirements of the law. Every person is cautioned not to use either this package again or the stamp thereon again, nor to remove the contents of this package without destroying said stamp, under the penalty provided by law in such cases." Every manufacturer of filled cheese who neglects to affix such label to any package containing filled cheese made by him or sold or offered for sale by or for him, and every person who removes any such label so affixed from any such package, shall be fined fifty dollars for each package in respect to which such offense is committed.

SEC. 9. That upon all filled cheese which shall be manufactured there shall be assessed and collected a tax of one cent per pound, to be paid by the manufacturer thereof; and any fractional part of a pound in a package shall be taxed as a pound. The tax levied by this section shall be represented by coupon stamps; and the provisions of existing laws governing the engraving, issue, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to stamps provided for by this section.

SEC. 10. That whenever any manufacturer of filled cheese sells or removes for sale or consumption any filled cheese upon which the tax is required to be paid by stamps, without paying such tax, it shall be the duty of the Commissioner of Internal Revenue, within a period of not more than two years after such sale or removal, upon satisfactory proof, to estimate the amount of tax which has been omitted to be paid and to make an assessment therefor and certify the same to the collector. The tax so assessed shall be in addition to the penalties imposed by law for such sale or removal.

SEC. 11. That all filled cheese as herein defined imported from foreign countries shall, in addition to any import duty imposed on the same, pay an internal-revenue tax of eight cents per pound, such tax to be represented by coupon stamps; and such imported filled cheese and the packages containing the same shall be stamped, marked and branded, as in the case of filled cheese manufactured in the United States.

SEC. 12. That any person who knowingly purchases or receives for sale any filled cheese which has not been branded or stamped according to law, or which is contained in packages not branded or marked according to law, shall be liable to a penalty of fifty dollars for each such offense.

Sec. 13. That every person who knowingly purchases or receives for sale any filled cheese from any manufacturer or importer who has not paid the special tax herein provided for shall be liable, for each offense, to a penalty of one hundred dollars and to a forfeiture of all articles so purchased or received, or of the full value thereof.

Sec. 14. That whenever any stamped package containing filled cheese is emptied it shall be the duty of the person in whose hands the same is to destroy the stamps thereon; and any person who willfully neglects or refuses so to do shall, for each such offense, be fined not exceeding fifty dollars or imprisoned not less than ten days nor more than six months.

Sec. 15. That the Commissioner of Internal Revenue is authorized to have applied scientific tests, and to decide whether any substances used in the manufacture of filled cheese contain ingredients deleterious to health. But in case of doubt or contest his decision in this class of cases may be appealed from to a board hereby constituted for the purpose, and composed of the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Secretary of Agriculture, and the decision of this board shall be final in the premises.

Sec. 16. That all packages of filled cheese subject to tax under this Act that shall be found without stamps or marks as herein provided, and all filled cheese intended for human consumption which contains ingredients adjudged as herinbefore provided to be deleterious to the public health, shall be forfeited to the United States.

Sec. 17. That all fines, penalties, and forfeitures imposed by this Act may be recovered in any court of competent jurisdiction.

Sec. 18. That the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall make all needful regulations for carrying into effect the provisions of this Act.

Sec. 19. That this Act shall go into effect on the ninetieth day after its passage, and all wooden packages containing ten or more pounds of filled cheese found on the premises of any dealer on and after the ninetieth day succeeding the date of the passage of this Act, shall be deemed to be taxable under section nine of this Act, and shall be taxed, and shall have affixed thereto the stamps, marks, and brands required by this Act or by regulations made pursuant to this Act; and for the purpose of securing the affixing of the stamps, marks, and brands required by this Act, the filled cheese shall be regarded as having been manufactured and sold or removed from the manufactory for consumption or use on or after the day this Act takes effect; and such stock on hand at the time of the taking effect of this Act may be stamped, marked, and branded under special regulations of the Commissioner of Internal Revenue, approved by the Secretary of the Treasury; and the Commissioner of Internal Revenue may authorize the holder of such packages to mark and brand the same and to affix thereto the proper tax-paid stamps.

Approved, June 6, 1896.

REGULATIONS

UNDER

An Act Entitled "An Act Defining cheese, and also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of 'filled cheese,'" approved June 6, 1896.

TREASURY DEPARTMENT,
OFFICE OF THE COMMISSIONER OF INTERNAL REVENUE,
Washington, D. C., July 9, 1896,

Section 18 of the act of June 6, 1896, above referred to, provides:

"That the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall make all needful regulations for the carrying into effect the provisions of this Act."

In pursuance thereof the following regulations have been made by the Commissioner of Internal Revenue with approval of the Secretary of the Treasury, and are hereby promulgated:

FILLED CHEESE DEFINED.

Cheese is defined in section 1 of the act, and "filled cheese," which is the special subject of these regulations, in section 2 thereof, as follows:

SECTION 1. That for the purposes of this Act, the word "cheese" shall be understood to mean the food product known as cheese, and which is made from milk or cream and without the addition of butter, or any animal, vegetable, or other oils or fats foreign to such milk or cream, with or without additional coloring matter.

SEC. 2. That for the purposes of this Act certain substances and compounds shall be known and designated as "filled cheese," namely: All substances made of milk or skimmed milk, with the admixture of butter, animal oils or fats, vegetable or any other oils, or compounds foreign to such milk, and made in imitation or semblance of cheese.

The mixture of cheese with coloring matter does not, under this law, render it liable to tax as filled cheese, such mixture being permitted under the definition given in the first section. If, however, the annotto or other coloring matter is mixed with a vegetable oil or an animal fat as a mordant, resulting in a compound resembling cheese, this compound would be liable to tax as filled cheese.

Collectors are advised, before reporting this compound for assessment of the tax thereon, to submit a sample for the inspection of this office, provided the coloring matter in the suspected cheese is the only ground for the belief that it is filled cheese.

Filled cheese is made from full skimmed milk with the admixture of neutral lard, cotton-seed oil, or some other fatty substance. Neutral lard, reduced to an oil, is mainly used.

The skimmed milk and oil are sprayed together at a temperature of from 130° to 140°, in the proportion of about four parts of milk to oneof oil. The emulsion thus resulting is then run into cheese vats and mixed with more skimmed milk. When properly cooled, rennet is added, which quickly coagulates the mass, and the usual process of cheese making is proceeded with. The proportion of fats injected into the skimmed milk to take the place of butter fats removed in the skimming of the milk, varies at the different factories, and in the different grades of cheese to which coloring and flavoring substances are added.

CONCLUSION.

The field covered by this department is a large one and demands careful attention. The last year's work has shown the good results which have been attained under our efficient Oleomargarine Law.

Dairymen of the State and all consumers of pure honest butter can take great satisfaction in the fact that very little colored oleomargarine is sold in the State at the present time, and that it can be kept from our markets if the provisions of the law are well carried out.

While the law relating to adulterated vinegar has been of great help to producers and consumers of pure vinegar, it needs to be strengthened in some points as has been shown. If this is done better results can be obtained.

The sale of adulterated molasses prevails to only a limited extent in the State.

It is a source of gratification to all who desire pure food that wise and efficient legislation on these points has accomplished good results.

I would take this opportunity to express my sincere thanks to my predecessors in office for all help and kindness shown, and for the good will and hearty co-operation of the officers of the Connecticut Experiment Station, and Dairymen's and Creamery Associations.

And also to the officials of the United States Internal Revenue Department who have been ready to give aid at all times.

Respectfully submitted,

J. B. NOBLE, *Dairy Commissioner.*

Fourteenth and Fifteenth

ANNUAL REPORTS

OF THE

State Board of Charities,

—OF—

CONNECTICUT,

For the Years Ending
September 30, 1895 and September 30, 1896.

PRESENTED TO THE GOVERNOR IN DECEMBER,
1895 AND 1896.

WATERBURY, CONN.:
WATERBURY BLANK BOOK MFG. CO., PRINTERS.
1896.

TABLE OF CONTENTS.

PAGE.
RECOMMENDATIONS FOR LEGISLATIVE ACTION 5
NAMES OF PAST AND PRESENT MEMBERS. 6, 7
STATUTES CONCERNING STATE BOARD OF CHARITIES 8-12
LIST OF INSTITUTIONS AND TOWNS VISITED 13-16
BOARD OF CHARITIES, COMPOSITION AND DUTIES 17-19
GENERAL REPORT FOR 1895 21-37
GENERAL REPORT FOR 1896 39-71
COST TO STATE, OF STATE AND STATE AIDED INSTITUTIONS . . 72-73
STATE PRISON AND PRISON ASSOCIATION 74-87
Reformatories:
Industrial School for Girls 88-90
State School for Boys 91-93
Provision for the Insane:
State Hospital for the Insane 94-96
State Beneficiaries in other Hospitals 97
Hartford Retreat for the Insane. 98-100
PRIVATE ASYLUMS:
Spring Hill Home 102
Cromwell Hall. 102
Kensett 103
Westport Sanitarium 104
Stamford Hall. 105
The Stamford (Kindred) Home. 106
Fairlea 107
Sound View Sanitarium 108
Statistics of Private Asylums. 109
Provision for the Feeble-Minded:
School for Imbeciles 110-113
Provision for the Deaf:
American School, at Hartford. 114-117
Mystic Oral School. 118, 119
Provision for the Blind:
Institute and Industrial Home 120-124
Provision for the Sick:
1. HOSPITALS, STATE—AIDED:
New Haven Hospital. 126-128
Hartford Hospital 128-130
Bridgeport Hospital 131, 132
Waterbury Hospital 132-134
Danbury Hospital 134, 135

Provision for the Sick:

1. HOSPITALS, STATE—AIDED (*Continued*): PAGE.

Grace Hospital, New Haven 136
Meriden Hospital 137, 138
Norwalk Hospital 138, 139
Memorial Hospital, New London 139-141
Backus Hospital, Norwich 141-143

2. HOSPITALS, NOT STATE—AIDED:

Day-Kimball Hospital, Putnam 144
Stamford Hospital 145
Sheltering Arms, Norwich 146
St. John's Hospital, Stamford 146, 147
Emergency Hospital, Bridgeport 147, 148
Emergency Hospital, Danbury 148
Dr. Hills' Private Hospital, Willimantic 149
Dr. Vail's Private Hospital, Thompsonville 149

Provision for Disabled Soldiers:

Fitch's Home for Soldiers 150-154
Soldiers' Orphans 155

County Jails:

Hartford County Jail 157-160
New Haven County Jail 161-163
New London County Jails 164-167
Fairfield County Jails 168-172
Windham County Jail 172-175
Litchfield County Jail 175-177
Middlesex County Jail 177-179
Tolland County Jail 180, 181

County Temporary Homes:

Statutes Concerning Homes 182-190
Report on Homes 191-201
Statistics of Children Received, etc 202-206
Receipts and Expenses of County Homes 207
Names of Boards of Management and Town Committees . . . 208-219

Provision for the Poor:

Almshouse for State Paupers 220-222
Town Almshouses and Almshouse Visitation 223-267
Statistics by Counties Relating to Support of Poor 268-278
PRIVATE PROVISION FOR THE AGED 279-291
Rights of Selectmen Regarding Dependent Children 292
PRIVATE PROVISION FOR THE YOUNG 293-310
Boarding of Infants 311-313

Appendix:

By-Laws of the Board 314-316
Act Establishing Connecticut Reformatory 317, 318
Act Concerning the Insane 318, 319

RECAPITULATION,

—OF—

RECOMMENDATIONS FOR LEGISLATIVE ACTION.

It is recommended by the State Board of Charities:

1. That provision be made for Insane Convicts at the State Prison, etc., (page 42).

2. That Cumulative Sentences be imposed in the case of second and third convictions for jail offenses, (page 46).

3. That Industrial Training be provided for all inmates of the Connecticut School for Boys at Meriden, (page 50).

4. That a License be required previous to the establishment of a Private Asylum, (page 54).

5. That a State Commission in Lunacy be appointed, (page 55).

6. That State aid for the Deaf be withdrawn from the Mystic Oral School, (page 58).

7. That a suitable penalty be established for violation of Section 3310 of the General Statutes, which provides that "all paupers shall be supported at some place or places within the town to which they belong, etc." (page 67).

FORMER MEMBERS OF THE STATE BOARD OF CHARITIES.

NAMES.	RESIDENCE.	DATE OF APPOINTMENT.	TERMINATION OF SERVICE.	
Benjamin Stark,	New London.	Sept. 18, 1873.	Resigned March 27, 1879.	
Levi Ives,	New Haven.	Sept. 18, 1873.	Resignation accepted May 1, 1875.	
Samuel F. Jones,	Hartford.	Sept. 18, 1873.	Resigned March 27, 1879.	
Miss Lucy Alsop,	Middletown.	Sept. 18, 1873.	Resigned 1878.	
Mrs. Marie Pettee,	Meriden.	Sept. 18, 1873.	Resignation accepted August 7, 1874.	
H. W. Buell,	Litchfield.	May 1, 1875.	Resigned March 27, 1879.	
Mrs. G. A. Hoyt,	Stamford.		Resigned 1878.	
Willis R. Austin,	Norwich.	March 18, 1881.	Resigned 1883.	
S. Rutledge McNary,	Hartford.	March 18, 1881.	Resigned 1883.	
Wm. H. Hotchkiss,	New Haven.	March 18, 1881.	Resigned 1883.	
Mrs. Augusta C. Pease,	Hartford.	March 18, 1881.	Resigned 1882.	
Miss Hannah L. Ripley,	Norwich.	March 18, 1881.	Resigned 1882.	
Mrs. Virginia T. Smith,	Hartford.	July 17, 1882.	Resigned 1882.	
Harlow P. Harris,	Salisbury.	April 18, 1883.	Died in office.	
James Gallagher,	New Haven.	April 18, 1883.	Reappointed 1887.	Term expired July 1, 1891.
Henry E. Burton,	Middletown.	April 18, 1883.	Reappointed 1887.	Term expired July 1, 1889.
Mrs. Virginia T. Smith,	Hartford.	April 18, 1883.	Reappointed 1887–9.	Term expired July 1, 1893.
Mrs. Francis Bacon,	New Haven.	April 18, 1883.	Reappointed 1887–9.	Term expired July 1, 1893.
Leverette W. Wessels,	Litchfield.	Nov. 3, 1885.	Reappointed 1887.	Term expired July 1, 1891.
George H. Wood,	Hartford.	July 1, 1889.		Term expired July 1, 1893.

PRESENT MEMBERS

—OF THE—

STATE BOARD OF CHARITIES.

		DATE OF APPOINTMENT.	TERM EXPIRES.
MISS REBEKAH G. BACON,	New Haven.	July 1, 1893.*	July 1, 1897.
MISS MARY HALL,	Hartford.	July 1, 1893.*	July 1, 1897.
ANDREW W. TRACY,	Meriden.	July 1, 1893.*	July 1, 1897.
GEORGE F. SPENCER,	Deep River.	July 1, 1893.†	July 1, 1899.
HEMAN C. WHITTLESEY,	Middletown.	July 1, 1893.†	July 1, 1899.

ORGANIZATION OF THE BOARD.

ANDREW W. TRACY, Meriden, *President.*

CHARLES P. KELLOGG, Waterbury, *Secretary.*

---

*Appointed by the Governor, with the consent of the Senate, for four years. (General Statutes, Section 1884).

†For the unexpired portion of the term of four years from July 1, 1891. Reappointed 1895.

General Statutes of Connecticut,

1888

with subsequent Acts and Amendments.

STATE BOARD OF CHARITIES.

Title XXVII , Chapter CXVI., Page 410.

Appointment.

Section 1884. There shall continue to be a State Board of Charities, composed of five members, of whom three shall be men and two shall be women. During the regular session of the General Assembly in 1889, and quadrennially thereafter, three members shall be appointed by the Governor, with the advice and consent of the Senate, and in like manner two members shall be appointed during the regular session of the General Assembly in 1891, and quadrennially thereafter, who shall hold their respective offices for four years from the first day of July next succeeding their respective appointments. Any vacancy not occurring from the expiration of a term of office shall be filled by the Governor during the unexpired portion of the term.

P. A. 1895, Ch. 311. SEC. 3. The Governor shall have power to remove any of the members of the State Board of Charities for cause.

Inspection of Almshouses, Homes for Dependent Children, Asylums, Hospitals, etc.

Sec. 1885. The Board may inspect all almshouses, homes for neglected or dependent children, asylums, hospitals, and all provisions or institutions for the care or support of the dependent or criminal classes; and they shall inspect all institutions in which persons are detained by compulsion, to ascertain whether their inmates are properly treated, and, except in cases of detention upon legal process, to ascertain whether any have been unjustly placed or are improperly held therein, and may examine witnesses, and send for persons and papers, and correct any abuses found to exist, in such manner as not to conflict with any personal, corporate or statutory rights, acting, so far as practicable, through the persons in charge of such institutions, and with a view to sustain and strengthen their rightful authority; and no measure shall be adopted without the assent of the persons so in charge, except at a meeting of the Board, at which at least four members shall be present, or by a written order, signed by a majority of the Board. An appeal may be taken to the Governor from any action of the Board, by the persons in charge of such institutions.

Certain Institutions to be Visited Monthly—Their Inmates to have Opportunity of Private Communication with Members of the Board.

Sec. 1886. The State Prison, the Connecticut School for Boys, the Industrial School and State Insane Asylum, shall be visited as often as once a month, and by at least one member of each sex; no previous notice of such visits shall be given to the persons in charge of the institution visited, and at every such visit an opportunity shall be offered to each inmate for private conversation with some member of the Board. Any communication directed to said Board, or to any member thereof, by any inmate of said institutions, shall be immediately forwarded, post-paid, to the postoffice, by the persons in charge, without inspection; and any inmate of said institutions may personally deliver to any member of said Board, and any member of said Board may receive any communication, without interference or inspection of the person or persons in charge. The inmates of said institutions shall be informed of their rights under this section by the persons in charge, to the satisfaction of said Board, or any visiting member thereof.

As amended P. A. 1893, Ch. 92.

SEC. I. Section 1886 of the general statutes is hereby amended by substituting the words "once in three months" for "once a month" in the third line thereof.

P. A. 1895, Ch. 311.

Homes for Dependent and Neglected Children.

Sec. 3656. In each county the County Commissioners thereof, with one member of the State Board of Charities and one member of the State Board of Health shall constitute a Board for * * * the general supervision of such temporary home or homes in the county, etc.

Sec. 3658. Any Court of Probate, the Judge of any City or Police Court * * * or any Justice of the Peace may * * * upon petition of * * * the State Board of Charities commit any child belonging to the class enumerated in Sec. 3655, to any Temporary Home that may have been established under this chapter, etc.

SEC. I. The State Board of Charities may recommend to the boards for the management and supervision of the temporary homes in the several counties suitable family homes for the dependent and neglected children in charge of said temporary homes, and may visit any family home in which any such child has been placed by the county board in any county, or any place in which any such child has been placed at employment by any county board, to ascertain whether such child is properly treated and whether such home is a suitable one, having in view the welfare of the child.

P. A. 1895, Ch. 298.

Sec. 2. Whenever it shall be found that any such child is not properly treated in any family home or that any such home is not a suitable one and is of such character as to jeopardize the welfare of any child so placed therein, the State Board of Charities shall report the facts in the case to the county board which placed the child in such family home, and said county board, upon being satisfied of the ill treatment of the child, or the unsuitableness of the home, shall remove the child from such home and take such further action as shall be necessary to secure the welfare of the child.

Overseers of the Poor to Keep Records and Make Returns.

Sec. 3312. Overseers of the Poor shall keep full and accurate records of the paupers fully supported, the persons relieved and partially supported, and the travelers and vagrants lodged at the expense of their respective towns, together with the amount paid by them for such support and relief, and shall annually in October make return of the number of such persons supported and relieved, with the cost, to the State Board of Charities.

Boarding of Infants.

Sec. 2612. Such house or premises shall at all hours during the day and before nine o'clock in the evening be open to visits of inspection by any officer or agent of the * * * State Board of Charities provided that such visit be made in company with a selectman of the town in which such house is located, or with some other proper person appointed by the selectmen of such town, etc, Such authorized visitors may direct and enforce such suitable measures respecting such children and premises as they may deem proper.

Sec. 2613. Any person violating any provision of the preceding section, or refusing admission to any of the persons specified in Section 2612, shall be fined not less than fifty nor more than five hundred dollars, or imprisoned not more than one year, or both.

Asylums for the Insane.

P. A. 1895, Ch. 256. Sec. 22. Every keeper of an asylum in this State shall, quarterly, make written return to the State Board of Charities, containing the name, age and sex of each patient confined therein, and the time when committed, and by whom, and such other information and in such form of return as said Board of Charities may prescribe.

Sec. 23. All asylums in this State shall be subject to the inspection and visitation of the State Board of Charities, and shall be so visited and inspected at least once in six months in each year.

Officers, Records, etc.

Sec. 1888. The Board shall have an office in Hartford, where its records, papers and books shall be preserved; and shall meet at least once in two months, and as much oftener as it shall deem best, and three members shall constitute a quorum. It shall make such by-laws as it shall deem necessary or desirable for the conduct of its business; and shall appoint a secretary or superintendent, describe his duties, and fix his compensation, which shall be paid like other salaries. The members and officers of the Board, excepting the secretary or superintendent, shall receive no compensation for their services, but their traveling and other necessary expenses shall be paid by the State as audited by the Comptroller.

SEC. 2. The secretary or superintendent of the State Board of Charities shall hold office during the pleasure of the Board; his compensation shall not exceed fifteen hundred dollars per annum, and he shall give his whole time to the duties of his office. He shall have all the powers of a member of the Board except that of voting at meetings, and may make any visitations required by statute of a member of the Board, and be a member of boards of management of temporary homes. The Board may commit to him any powers or duties which may be exercised by it, but in the exercise and performance thereof he shall always be subject to the direction and control of the Board. If any member of the Board of Charities appointed by the Governor shall be appointed secretary or superintendent, his office, as a member appointed by the Governor, shall become vacant, and the vacancy shall be filled as by law provided. P. A. 1895, Ch. 311.

SEC. 3. The State Board of Charities may authorize its secretary or superintendent, or any agent appointed by it, to visit family homes in which dependent and neglected children in charge of temporary homes in the several counties may be placed, to recommend suitable family homes to the county boards, and perform such further duties in connection with the dependent and neglected children in charge of such temporary homes as said State Board of Charities may prescribe; but it shall not pay any agent appointed by it more than three dollars per day for time actually employed, and the total compensation of its secretary and any such agents shall not exceed two thousand dollars in any one year. P. A, 1895, Ch. 298.

Estimates of State Expenses to be Made Biennially.

Sec. 379. It shall be the duty of the persons mentioned in the next section, on or before the first day of December, in the year eighteen hundred and eighty-eight, and biennially thereafter, to make and transmit to the Treasurer, estimates of the amount of money required in their respective departments and offices of the State goverment for the two fiscal years commencing on the first day of the following July. Such estimates shall be itemized to such an extent and in such manner as may be required by law, and by any rules, instructions or regulations adopted by the Treasurer and Secretary.

By Whom to be Made.

Sec. 380. The estimates for the different classes of expenditure shall be made as follows, to wit: * * * For the State Board of Charities, by the Comptroller.

Annual Report.

Sec. 1887. It shall be the duty of said Board to collect information and statistics relating to pauperism, and the administration and operation of the poor laws and State charities, and to embody the same, with such suggestions as they may deem best, in an Annual Report.

P. A. 1895, Ch. 294. SEC. 1. All reports heretofore or hereafter required to be made by State departments, institutions, commissions, boards, or any recipients of State money shall, from and after the passage of this act, be made to the Governor and by him transmitted to the General Assembly.

SEC. 2. All reports above referred to shall be made to and including the thirtieth of September, 1895, and annually thereafter, and shall be published on or before the thirty-first day of December following; * * *

Number of Annual Reports to be Printed.

Sec. 331. The Comptroller shall annually cause to be printed, at the expense of the State, such number of copies of each of the following annual reports as [is hereinafter stated: * * * of the State Board of Charities, two thousand * * *

LIST OF INSTITUTIONS VISITED

BY THE

STATE BOARD OF CHARITIES

In 1895—96.

The Connecticut State Prison,	Wethersfield
The Connecticut Industrial School for Girls,	Middletown
The Connecticut School for Boys,	Meriden
The Connecticut Hospital for the Insane,	Middletown
The Connecticut School for Imbeciles,	Lakeville
The Retreat for the Insane,	Hartford
Fitch's Home for the Soldiers,	Noroton

County Jails.

Hartford County,	Hartford
New Haven County,	New Haven
New London County,	Norwich
New London County,	New London
Fairfield County,	Bridgeport
Fairfield County,	Danbury
Windham County,	Brooklyn
Litchfield County,	Litchfield
Middlesex County,	Haddam
Tolland County,	Tolland

Private Asylums for Persons Suffering from Insanity, Nervous and Mental Diseases, Etc.

Spring Hill Home,	Litchfield
Cromwell Hall,	Cromwell
Kensett,	Norwalk
The Westport Sanitarium,	Westport
Stamford Hall,	Stamford
The Stamford (Kindred) Home,	Stamford
Fairlea,	Noroton
Sound View Sanitarium,	Greenwich

Institutions for the Deaf.

The American School at Hartford for the Deaf,	Hartford
The Mystic Oral School,	Mystic

Institutions for the Blind.

The Connecticut Institute and Industrial Home,	Hartford

Hospitals.

The New Haven Hospital,	New Haven
The Hartford Hospital,	Hartford
The Bridgeport Hospital,	Bridgeport
The Waterbury Hospital,	Waterbury
The Danbury Hospital,	Danbury
Grace Hospital,	New Haven

THE MERIDEN HOSPITAL,	Meriden
THE NORWALK HOSPITAL,	Norwalk
THE MEMORIAL HOSPITAL,	New London
THE WILLIAM W. BACKUS HOSPITAL,	Norwich
THE STAMFORD HOSPITAL,	Stamford
THE DAY-KIMBALL HOSPITAL,	Putnam
THE EMERGENCY HOSPITAL,	Bridgeport
THE EMERGENCY HOSPITAL,	Danbury
THE SHELTERING ARMS,	Norwich
ST. JOHN'S HOSPITAL AND HOME,	Stamford
DR. HILLS' PRIVATE HOSPITAL,	Willimantic

County Temporary Homes.

HARTFORD COUNTY,	Warehouse Point
NEW HAVEN COUNTY,	New Haven
NEW LONDON COUNTY,	Preston
FAIRFIELD COUNTY,	Norwalk
WINDHAM COUNTY,	Putnam
LITCHFIELD COUNTY,	Winsted
MIDDLESEX COUNTY,	Haddam
TOLLAND COUNTY,	Vernon Center

Homes for the Aged.

THE ELLEN M. GIFFORD HOME FOR INCURABLES,	New Haven
THE OLD PEOPLE'S HOME,	Hartford
THE TRINITY CHURCH HOME,	New Haven
THE OLD LADIES' HOME,	New Haven
THE HOME FOR THE FRIENDLESS,	Fair Haven
THE CURTIS HOME,	Meriden
THE SMITH MEMORIAL HOME,	New London
THE CHURCH HOME,	Hartford
THE LAWSON C. IVES WIDOWS' HOME,	Hartford
THE WIDOWS' HOME,	Hartford
THE ERWIN WOMAN'S HOME,	New Britain
THE ELIZA HUNTINGTON HOME,	Norwich
ST. MARY'S HOME,	West Hartford
THE HARRIET M. MAKINSTER HOME,	Middletown
ST. JOHN'S HOME,	Stamford

Homes for the Young.

THE NEW HAVEN ORPHAN ASYLUM,	New Haven
ST. FRANCIS' ASYLUM,	New Haven
THE HARTFORD ORPHAN ASYLUM,	Hartford
ST. CATHARINE'S GIRLS' ORPHANAGE AND ST. JAMES' ASYLUM FOR BOYS,	Hartford
THE BRIDGEPORT ORPHAN ASYLUM,	Bridgeport
THE WATKINSON JUVENILE ASYLUM AND FARM SCHOOL,	Hartford
THE GILBERT HOME,	Winsted
THE CHILDREN'S HOME,	Norwalk
THE ROCK NOOK HOME,	Norwich
THE DANBURY CHILDREN'S HOME,	Danbury
THE CHILDREN'S BRANCH OF THE CURTIS HOME,	Meriden
THE CHILDREN'S BRANCH OF THE HOME FOR THE FRIENDLESS,	Fair Haven
THE MIDDLESEX COUNTY ORPHANS' HOME,	Middletown
THE WAPPING NURSERY,	South Windsor
THE MAPLEWOOD FARM,	East Canaan
THE CONNECTICUT CHILDREN'S AID SOCIETY,	Hartford
	Total, 84

LIST OF TOWNS VISITED

BY THE

BOARD TO INSPECT ALMSHOUSES

And Other Provision for Town Poor

In 1895—96.

Hartford County.

Hartford,
Berlin,
Bristol,
Canton,
East Hartford,
East Windsor,
Enfield,
Glastonbury,
Marlborough,
New Britain,
Simsbury,
Southington,
South Windsor,
Suffield,
Windsor Locks.

New Haven County.

New Haven,
Waterbury,
Ansonia,
Branford,
Cheshire,
Guilford,
Hamden,
Meriden,
Naugatuck,
Oxford.
Prospect,
Wallingford,
Wolcott,
Woodbridge.

New London County.

New London,
Norwich,
Colchester,
Groton,
Ledyard,
North Stonington,
Stonington,
Waterford.

Fairfield County.

Bridgeport,
Danbury,
Brookfield,
Darien,
Fairfield,
Greenwich,
Huntington,
Newtown,
Norwalk,
Stamford,
Stratford,
Westport.

Windham County.

Windham,
Putnam,
Brooklyn,
Canterbury,
Killingly,
Plainfield,
Pomfret,
Sterling,
Thompson,
Woodstock.

Litchfield County.

Litchfield,
Winchester,
New Milford,
Bridgewater,
Cornwall,
Kent,
New Hartford,
Norfolk,
North Canaan,
Salisbury,
Sharon,
Torrington,
Woodbury.

Middlesex County.

Middletown,
Haddam,
Chatham,
Cromwell,
East Haddam,
Essex,
Portland,
Saybrook,
Westbrook.

Tolland County.

Tolland,
Andover,
Ellington,
Hebron,
Somers,
Vernon.

ALMSHOUSE FOR STATE PAUPERS, - Tariffville.

Total, - - 88.

The State Board of Charities,

MEMBERS AND AGENTS.

As provided in the General Statutes of Connecticut, the State Board of Charities consists of five members, three men and two women, who are appointed by the Governor with the advice and consent of the Senate to serve for a period of four years each, three members being appointed during the Legislative session of 1889 and quadrennially thereafter, and two during the session of 1891 and quadrennially thereafter, the term of office to date from the first day of July succeeding the appointment.

The Board has an office in the Capitol at Hartford where its records, papers and books are preserved. A meeting is held on the first Wednesday of each month—and special meetings, also, as occasion requires. The members and officers of the Board, excepting the secretary and agents, receive no compensation for their services, but the traveling and other necessary expenses incurred in the performance of their official duties are paid by the State.

In accordance with an Act of the General Assembly of 1895, a secretary is now chosen from outside the membership of the Board who serves during the pleasure of the Board and gives his whole time to the duties of the office. The secretary has all the powers of a member of the Board except that of voting at meetings, may make any visitations required by statute of a member of the Board, and may be a member of the Boards of Management of County Temporary Homes.

Under another Act of the same year, two special agents have been appointed by the Board to assist in the placing out and supervision of children from the County Homes. A fuller statement of their work may be found in the General Report in the paragraphs on County Temporary Homes.

Powers and Duties.

An examination of the General Statutes and the Public Acts relating to the State Board of Charities shows that its powers and duties are largely advisory, constituting it a board of visitation and inspection for all institutions in the State designed for the restraint and care of its dependent, defective and delinquent classes. The Board is empowered to correct any abuses found to exist in these institutions in such manner as not to conflict with any personal, corporate or statutory rights, acting, so far as practicable, through the persons in charge of the institutions and with a view to sustain and strengthen their rightful authority.

The chief executive functions of the Board are to be found in connection with the County Temporary Homes, each of which is under the direction of a board of management consisting of the three County Commissioners and one representative each from the State Board of Charities and the State Board of Health. The Board of Charities and its agents are further authorized to recommend to the boards of management suitable family homes for the children in charge of the Temporary Homes, to visit families in which the children may be placed for the purpose of ascertaining whether they are properly treated and whether the homes are suitable ones for their welfare, and to exercise a general supervision over dependent and neglected children who are under the care of the County Temporary Homes.

In accordance with statutory requirements visits are made by members of the Board, at least one of each sex, as often as once in three months to the State Prison, the Industrial School for Girls, the Connecticut School for Boys, and the State Hospital for the Insane without previous notice to the persons in charge. The inmates of these institutions have the right of private communication with members of the Board either by personal conversation or by sealed correspondence, and shall be informed of their rights in this respect by the persons in charge to the satisfaction of the Board.

All asylums for the restraint and care of the insane and persons suffering from mental or nervous diseases are visited and inspected as often as once in six months, and quarterly statistical returns are made by their managers to the Board, stating the name, age and sex of each patient confined therein, the time when committed and by whom and such other information as the Board may prescribe.

The County Jails are examined from time to time and inspection is made of institutions for the care of the Deaf, the Blind and the Feeble Minded. Visits are made to hospitals, both those that receive State aid and others, and to Fitch's Home for Soldiers at Noroton. Private institutions for the care of the indigent aged and young are visited, and all houses or premises used for the boarding of infants are open to inspection by the Board.

Examination is made of the almshouses or other provision for the poor in all towns of the State as well as of the almshouse for State paupers at Tariffville. It is also the duty of the Board to collect information and statistics relating to pauperism and the administration and operation of the poor laws and State charities, and to embody the same, with such suggestions as they may deem best, in an annual report.

As may be seen from the foregoing paragraphs, the Board of Charities, beyond its strict limitations as such, embodies also the functions of a prison commission and of a lunacy commission, so far as these obtain in this State. Up to the present time, however, there is nothing in the name of the Board to suggest its combined nature.

FOURTEENTH ANNUAL REPORT

— OF THE —

STATE BOARD OF CHARITIES.

For The Year Ending September 30, 1895.

OFFICE OF THE STATE BOARD OF CHARITIES,
Room 80, Capitol, Hartford, Conn.

To His Excellency, O. Vincent Coffin,
Governor of the State of Connecticut:

SIR:—We have the honor to submit herewith the Annual Report of the Board for the year ending September 30, 1895, in accordance with Section 2, Chapter 294 of the Public Acts of 1895:

THE WORK OF THE BOARD.

During the year under review meetings of the Board have been held monthly at its office in the Capitol, and special meetings also as occasion has required, and the business then conducted has been duly recorded in the minutes of the meetings and the reports and documents in connection therewith have been filed for reference in the Board's office.

In carrying forward the work of the Board along the lines as laid down in the General Statutes, regular visits of inspection have been made to the State Prison, the Connecticut School for Boys, the Industrial School for Girls and the State Hospital for the Insane once a month as required up to August 1, 1895, and on the basis of once every quarter thereafter, as enjoined in Chapter 311 of the Public Acts of 1895.

Inspections have been made of the County Jails, Hospitals, Private Asylums, and County Temporary Homes, and forty towns have also been visited to inspect the almshouses and to examine into the provision for the care of the town poor.

All of the visits above referred to have been made as directed by Statute, without notice in advance to the persons in charge of the institutions visited.

It has been found that the institutions whose managers understand the importance of the interests committed to their charge and who are willing to do their full duty in respect to the best care of the inmates and attention to the details of the various departments of the establishments, present a uniform appearance of cleanness, order and good management and the members of the Board take pleasure in stating that in their opinion the institutions so conducted in Connecticut form a considerable proportion of the total number. It is proper to acknowledge also that throughout the State a general spirit of willingness has been shown on the part of the managers concerned to co-operate with the Board in an effort to comply with the provisions of the Statutes which relate to their work respectively, and to bring about such necessary improvements as are within their power. Much still remains to be done however. There should be more of economy in one direction, more of efficiency in another and more of right principle in a third; and the institutions and organizations which present these deficiencies will be held under as careful observation as possible in the hope that by repeatedly calling attention to the defects in question their permanent improvement may be eventually secured.

Since the date of the last Report, September, 1894, a number of important changes have been made in matters which concern the charities of the State. Improvements in the direction of additional buildings and increased facilities have been projected in several instances and certain of the Statutes, which were passed by the General Assembly of 1895, will undoubtedly bring a needed measure of relief to the dependent classes for whose sake they were intended. It has clearly been a year of progress and it is safe to say, also, that the advancement which has been made is not so much the experimental opening of a new movement, as it is the well assured outcome of conclusions which have presented themselves after years of trying experience. Looking, therefore, over the entire field as represented by our State, we find that changes have taken place in all classes of institutions.

THE STATE PRISON.

In the case of the State Prison the old west wing is being remodeled under a specific appropriation granted by the last General Assembly for this purpose, and, when completed, will furnish a ward for prisoners convicted of less serious crimes and will be a step toward the scientific classification of the prisoners, which is now considered advisable. A new kitchen is being erected for the use of this wing and will be so arranged that it may be used in connection with a ward for insane convicts, which it is hoped to build beyond. The need of such a ward has long been felt and with its erection the institution will be much better equipped for the proper treatment of its inmates. The special commission appointed by the Governor in 1893, to investigate the local and specific causes of insanity at the Prison, stated in their report that "the chief local cause was the absence of a proper place for the immediate and temporary care of those who are laboring under temporary derangement of the nervous system." Among other improvements projected at the Prison are the erection of a new storehouse, kitchen and bakery and the alteration of the old kitchen for use as a punishment bay with cells for solitary confinement below. A new industry of shirt making has been established in one of the shops and promises to prove satisfactory.

THE STATE HOSPITAL FOR INSANE.

The State Hospital at Middletown is occupying its new building, called the North Hospital, which was begun in 1894 and completed in 1895, and has accommodations for two hundred and fifty inmates. The use of the new building brings a welcome relief from the sadly overcrowded condition which for years has been an unfortunate feature of the institution. The pressure for admittance to the Hospital, of patients from all sections of the State continues unabated and the recent increase in accommodations will be soon fully availed of. It marks a noticeable advance in this respect from the institution of recent years when, owing to lack of room at the Hospital, many of the insane wards of the State were deprived of the opportunity for placing themselves under medical treatment.

THE CONNECTICUT SCHOOL FOR BOYS.

At the School for Boys in Meriden, changes have been made in the interior arrangements so as to provide more room for the class in telegraphy and better facilities for the operation of the printing department which has been doing a steadily increasing amount of work and clearly needed more space. The workshops, also, in the rear of the main building, have been fitted with necessary appliances for the instruction of boys in useful trades. Arrangements have been made for the introduction of military and gymnastic exercises into the School's system of training. It is expected that the effect of this drill will be to improve the boys' bearing generally and to cultivate habits of prompt obedience.

THE CONNECTICUT INDUSTRIAL SCHOOL FOR GIRLS.

The changes which have been made during the year at the Industrial School for Girls have not been of a radical character. The finishing touches have been put to the Russell Home No. Two, as it is called, and to Fessenden Hall and its approaches. There has been the usual outlay for maintenance and repair of the several departments of the various buildings. New walks have been laid and the grounds at the front of the institution have been carefully graded.

THE CONNECTICUT SCHOOL FOR IMBECILES.

In connection with the School for Imbeciles at Lakeville, it may be noted that the hospital building which was begun in 1894, under a special appropriation of the 1893 General Assembly, is now finished and in actual operation. This is an unpretensious but well arranged building with an excellent location on the hillside facing Wononscopomus pond and serves a most useful purpose as a necessary adjunct to the other departments of the School.

COUNTY JAILS.

In referring to County Jails in the Board's last Report, particular attention was drawn to the fact that in nearly every case the accommodations were not satisfactory and that it was advisable on every account that remedial measures should be undertaken without delay. It is therefore gratifying to be able to report at this date that during the year under review a substantial improvement has been made in the instances where it was most urgently needed. Legislative Committees were appointed shortly after the coming together of the General Assembly in 1895, whose special business it was to investigate the condition of the jail property in their respective Counties and report to the County members the results of their examinations. The action was prompt in some cases and slow in others but the vital point is that action has been taken and that much good may be expected from it. Four Counties are principally concerned in the movement.

In the case of the Hartford County Jail, there had been long standing complaints in regard to the lack of sufficient cells, and the unsatisfactory location, size and surroundings of the hospital, laundry, kitchen, store-rooms and work shop have been a hindrance to an efficient administration of the institution's daily routine and have placed both officers and inmates at a serious disadvantage. The needs of the jail were thoroughly inquired into by the special committee and acting upon the recommendation in their report, it is expected that the County will soon vote an appropriation which will be sufficient to carry out the improvements which are most of all required at the present moment.

New Haven County did a similar thing and did it promptly and fortunately, too, because the necessity was correspondingly urgent. The chief difficulty in the New Haven Jail had been lack of cell room. It was not an uncommon thing to be required to provide accommodations for from one hundred to one hundred and fifty more inmates than there were cells. In such circumstances the best provision possible was made for the extra number by doubling up the men and enlarging the beds by planks or barrel staves. This condition was acknowledged to be extremely bad and the records, month by month, for several years show that the average of the jail's population was steadily increasing. It was proved beyond question that more room must be provided without delay. It was found upon investigation that changes were required in other parts of the institution also. The result was that plans were drawn and that a special appropriation was voted by the County for the purpose and the work of building a good sized addition was promptly undertaken. Upon its completion New Haven County will have a jail in keeping with its growing requirements.

It is a matter of record that for several years past the Windham County Jail at Brooklyn has been so managed that it has largely paid the cost of its own maintenance, a result which has been due to the systematic methods in which local possibilities have been cultivated and made use of for keeping the inmates fully employed. The jail buildings, however, were old and unsuitable. The accommodations were insufficient and in regard to ventilation, sanitary arrangements, water supply and drainage its condition was sadly deficient. The details of the situation and the question of abandoning the Brooklyn site and establishing the jail in another and more easily accessible town, had been before the County for several years.

Early in 1894 the State Boards of Health and Charities united in pressing upon the County certain recommendations and in the autumn of the year a few of the most necessary changes were carried out which effected a temporary improvement. It was left to the County members to determine during the January, 1895, Session, what final action should be taken.

On account of the special advantages which the present site offers and which it has been the custom to make such good use of, it has been decided to abandon the idea, for the present, of removing the jail from Brooklyn. The old buildings will be enlarged, however, and the whole establishment, under an appropriation of $20,000 by the County, will be refitted and improved throughout and put in a proper condition for good service.

In regard to the Litchfield County Jail, the case was approximately as bad as that of the three jails above mentioned. The total number of inmates committed during the year would seldom amount to more than one hundred and sixty, and the average population from month to month would be about fifty. For the accommodation of these, there were provided only eighteen cells for men and two small rooms for women, and provision was made for the remainder of the men in rooms on the third floor of the building which had never been intended for such a purpose and were in every respect unsuitable. Besides being small and old, the Jail was insecure and inconvenient and situated at some distance from one of the larger centers. Radical changes were urgently needed and the County members were called together early in 1895, and a committee appointed to investigate and report. A strong movement was made to secure the removal of the Jail to a more central and accessible point, but, unfortunately, it did not succeed. The Jail, therefore, will remain at Litchfield for the present, but upon the report of the committee a special appropriation was voted for the erection of an addition which will largely increase the Jail's capacity. Further changes are also under way in the plan of the interior department which, when finished, will bring the Jail up to the proper standard as an institution for the detention and proper care of the County criminal classes.

HOSPITALS.

The list of these important institutions in Connecticut has not been increased during the past year. It included on September 30, 1895, eleven General or Public Hospitals, two Emergency Hospitals and a number of private institutions in the larger cities conducted by practicing physicians for the special treatment of private patients. Movements for Public Hospitals have made considerable progress in New Britain and Stamford. In the latter city more than $80,000 have been subscribed and $25,000 was voted by an appropriation of the State. The trustees have purchased a fine piece of property and expect to open the Hospital for the reception of patients early in the year. In New Britain a considerable sum has been raised for the purpose and the trustees of the Association have examined a number of sites for the Hospital but have reached no decision as yet. Charters were also granted by the last Legislature to certain citizens of Middletown and Winsted, incorporating them under the names of the Middlesex Hospital and the Litchfield County Hospital, respectively, for the purpose of establishing General Hospitals in those places. Upon the completion of the four institutions above mentioned, there will be either public or private Hospital provision in each of the seventeen cities in the State, with the exception of Ansonia, Derby and Rockville, whose requirements have so far been met by the Hospitals in New Haven and Hartford respectively.

PRIVATE ASYLUMS FOR THE INSANE.

In connection with the Darien Home for mental and nervous diseases, which was established in January, 1894, a special department has been opened in Stamford during the year, which is designed especially for the treatment of alcoholic and narcotic habitués.

The sanitarium for the care and treatment of nervous and mental diseases, located at Noroton under the name of Fairlea, is the most recently established of the Private Asylums in the State. It is under the management of J. E. Bowman, M. B., and was opened for the reception of patients in August last.

Mention is also made here (for the first time in any of the Board's Reports) of the existence at Greenwich of the Private Asylum which is known as the Louden Sanitarium. The rates here are somewhat lower than those which are in force in other similar institutions. Another point of difference is that no house-physician is regularly attached to the local management. When the condition of a patient becomes such that it is deemed advisable to seek medical advice, the services of a local practitioner are called in. It seems fair to assume that it will be in the interest of the management to do so as seldom as possible, and, if so, it represents a situation which cannot be approved. Every institution of this class which shelters inmates who are unsound, it may be, in both mind and body, ought not to be dependent for medical services upon the occasional visits of an outside practitioner. There should be a physician on the place ready to act at a moment's notice and prepared to give his whole attention to the general well-being of the patients under his charge. The manager of the Sanitarium under the same name which is located at Amityville, L. I., was recently brought before a Court in the State of New York on the ground that the institution was being managed as a Private Asylum for the Insane without the authority of a license. The manager referred to and the manager of the Sanitarium at Greenwich are brothers and have been conducting the business of the two institutions on a joint basis. In other States it is necessary to obtain an official license from the Governor, or from the State Commission in Lunacy, before a person may legally establish or keep a Private Asylum or Home for the care of the insane. In our State such a license is not necessary and in fact the only obligation required by Statute of the keepers is, that they shall make written returns quarterly to the State Board of Charities, stating therein such statistics and other information as the Board may prescribe. Owing to the increased number of these institutions, which are making a home in Connecticut, it is recommended that regulations in regard to their establishment should be adopted similar to those which now obtain in other States.

COUNTY TEMPORARY HOMES.

The most conspicuous want in the case of any of these institutions has been that of a schoolhouse for the Hartford County Home at Warehouse Point. For years the children have attended school on the premises in a room which had been partitioned off on the west side of the barn, making a long and narrow apartment imperfectly lighted by windows on one side and in its furnishings and surroundings most uninviting and unfit. It should have been abandoned long ago as wholly unsuitable for the purpose. Fortunately a change has at last been authorized. A new schoolhouse is to be built at an expense not to exceed $5,000, and it will be an eventful day in the history of the Home when the children can have the privilege of attending school in a well ventilated, well located, properly appointed, wholesome building.

At the Windham County Home in Putnam, important changes have also been made. The capacity of the Home has been increased and a special building has been erected for use as a hospital. The improvements referred to have been completed and the Home is now in a favorable condition to meet all probable requirements for several years.

Material improvements on similar lines have been carried out in the case of the Tolland County Home at Vernon Center. A two-story addition has been built on to the rear of the Home and fitted up for use as dormitory, bath room and play room, and the water supply, which had at times hitherto proved deficient, has been so increased as to secure for the Home, in all probability, an ample supply even in the driest season. White enameled iron bedsteads have been substituted for old wooden ones in the dormitories and all the Home buildings have been re-painted.

At the New London County Home in Preston, the main building has been enlarged by an addition, the lower floor of which is used as a school room and the upper floor as a dormitory.

The total number of children received in the eight County Homes during the year was four hundred and eighty-four, and of these one hundred and eighty-three were placed out in family homes and the same number were returned to their relatives and friends.

In connection with private provision for the young and aged, it may be noted that the Curtis Home in Meriden, St. Francis' Orphan Asylum in New Haven and St. Mary's Home for the Aged in West Hartford have increased their capacity respectively by the erection of additional buildings to meet their present requirements. The Gilbert Home at Winsted is enjoying the advantages of its large and well equipped school building. The Watkinson Juvenile Asylum and Farm School has moved into its new and commodious quarters and the Bridgeport Orphan Asylum has purchased a lot and obtained plans for a new building.

THE MYSTIC ORAL SCHOOL.

The institution which was founded some twenty years ago at Mystic and has been conducted as the Whipple Home School for the Deaf, has been reorganized during the past year and is now known as the Mystic Oral School. The cause of the reorganization was the sudden development of the scandal in connection with its management. As stated in the Board's previous Report, the institution had regularly received from the State an annual appropriation of $175 for each pupil, but had not made a practice of rendering an annual statement showing the number of pupils in attendance and the total receipts and disbursements, and was being conducted as a purely private institution in the interests of the manager, who was responsible to no one for the use of the public funds. When in the usual course of things the next account was presented, showing the amount to be paid to the School on the basis of $175 for each pupil annually, it was not in this instance accepted and paid on the word of the manager. An investigation was ordered and it was found that included in the number were names of children who were not then in attendance in the School and had not been for many months past. Further inquiry showed that the total loss to the State, by payment of such fraudulent claims, had amounted to nearly $10,000.

Mrs. Hammond, the manager and proprietor, immediately left the School without notice and has never returned. It is believed that no one, except her nearest relative, knows her present hiding place. So far as could be ascertained, Mrs. Hammond was the only one connected with the School who was a party to the frauds upon the State. At the time of her departure the salaries of all the teachers and assistants were much in arrears and she actually left in the possession of the assistant, who was nearest to her in the management, only twenty-five cents with which to conduct the affairs of the School. The work of the institution is now controlled by Mrs. J. I. McGuigan, who is Mrs. Hammond's only surviving daughter. Mrs. McGuigan lives in Philadelphia, and occasionally visits the School. During her absence its business affairs are in the charge of Miss Jennie Whipple. The average number of pupils is twenty, and the same system of instruction by the oral method, which has been characteristic of this School in the past, is still followed. A staff of three teachers and one supervisor is employed, three of whom have charge of the girls and one of the boys.

Some minor improvements have been carried out, but no material changes have been made during the year in the buildings, fences or other furnishings, which it may be noted are not in keeping with the standards of other State-aided institutions. It is not known that the State is represented in its management, and inquiry at the School failed to show the existence of a Board of Trustees or Executive Committee. A strict account of all receipts and expenses is now kept and it is the intention to issue a report of the School at the end of the current year. The resources of the School and its facilities for instruction are limited, and do not compare favorably with the opportunities for combined instruction in industrial training and for mental development and acquisition of speech which are offered to the indigent deaf mutes of the State by the old established School in Hartford. Taking the School as a whole and in comparison with the institution at Hartford, it does not appear that it is in a position to offer such opportunities for the thorough education in general and specific branches as would be most likely to qualify pupils to fill permanent positions and become self-supporting. Furthermore, the State does not require two schools for the instruction of its deaf wards and better results could undoubtedly be obtained if the State's annual appropriation for each pupil were confined to the institution at Hartford, which can readily accommodate a greater number of inmates.

RECENT STATUTES REGARDING STATE INSTITUTIONS AND CHARITIES.

Several statutes were enacted by the General Assembly of 1895 which directly concern the institutions and charities of the State. The most important of them may be mentioned as follows:

Chapter 317 was an act to establish a State Reformatory, which has long been needed in the State, for the custody and correction of the younger class of law-breakers, for whom there is some hope of reformation, and also to accommodate women, for whom the County Jails have been in many cases unfit. The Act provides that there shall be a women's department separate from that occupied by the male prisoners, and, as far as practicable, under the charge of women. All females above the age of sixteen years, who shall be convicted of any offense which might be punished by imprisonment in a jail, may be committed to the Reformatory. It also provides for the commitment of the following classes of males: all over the age of sixteen and under the age of thirty years who shall be convicted of any offense punishable by imprisonment in jail; all persons over thirty years of age, when convicted a third time for the same offense, and all tramps and habitual drunkards of any age above sixteen years, including any person convicted of drunkenness for the third time within three consecutive years. All persons are to be committed to the Reformatory upon indeterminate sentences, which shall not, however, in any case, exceed the term of five years. Prisoners may be released on parole when the Directors are convinced of their probable reformation, and may receive absolute discharge when they have proved their full reformation. The sum of $50,000 was appropriated for land and buildings for the Reformatory.

Under the provisions of Chapter 180, both pauper and indigent insane persons may now be committed to the State Hospital on the basis of $2 a week for each person. This removes the former distinction between paupers and indigent persons, by which the towns were compelling the State to pay an unfair proportion of the support of the latter class at Middletown.

By Section 3 of Chapter 328 the age limit of children committed to the County Temporary Homes, during which the Boards of Management shall be their legal guardians, has been raised from sixteen to eighteen years. This now gives the Board of Management of each of the County Homes all the powers of guardianship over the children committed to them, including the right to give them out in adoption in certain cases.

Chapter 298 gives to the State Board of Charities power to appoint special agents to secure family homes for children who have been committed to County Homes, and to visit them after they have been placed out. Under this provision the Board has appointed two persons as special agents for this work and a great improvement is expected in the systematic oversight of these dependent children.

The provisions of Chapter 328, Sections 1 and 2, require the Board of Management of each County Home to meet at least once in three months, and at such meeting, held in the fall months of the year, the town committees for the Home shall meet with the Board.

An important change in the time of visiting the State institutions has been made by Chapter 311, under which Section 1886 of the General Statutes is amended so that the State Prison, the State Hospital for Insane, the School for Boys and the Industrial School are now visited once in three months by members of the Board instead of once a month. Under Section

2 of the same Act, the Secretary of the Board is now required to give his whole time to the duties of the office.

Chapter 313 provides that any selectman or overseer of the town poor who places or retains any child between the ages of two and sixteen years in an almshouse in violation of the provisions of Section 3657 of the General Statutes, shall forfeit $50 for each month of such violation.

Under the provisions of Chapter 324, no asylum or institution for incurable persons can be established or maintained within the limits of any town without the consent of said town unless under express legislative authority.

EXPENSE TO STATE AND TOWNS.

In this State, with a population in 1890 of 750,000, it is known that for its criminal, defective and dependent classes there are maintained the following institutions :

For Criminals,	11	(State Prison and County Jails).
Boys' and Girls' Reformatories,	2	(School for Boys and Industrial School).
The Insane,	11	(State Hospital, Retreat, 9 Private Asylums).
The Feeble Minded,	1	(School for Imbeciles).
The Deaf,	2	(American Asylum and Mystic Oral School).
The Blind,	1	(Institute and Industrial Home for the Blind).
The Sick and Injured,	17	(Hospitals, Public and Private).
Old Soldiers,	1	(Fitch's Home for Soldiers).
Dependent Children,	8	(County Temporary Homes).
Paupers,	87	(Almshouse for State Paupers, Town Almshouses).
The Aged, Private Provision,	15	(Old People's Homes).
The Young, Private Provision,	13	(Orphan Asylums and Homes).

The amount paid by the State for the support and aid of a part of the above institutions was, in 1894, $576,727.00, and in 1895, $588,721.00.

The amount paid by towns for the relief and support of their poor population was, in 1893, $736,998.00, and in 1894, $813,275.00.

It is noticeable that there is a steady increase in the amount so spent year by year, and that the total makes a large sum for a State of the size and population of Connecticut.

SUMMARY.

A brief recapitulation of the more important changes and additions made during the year, or now in progress, in the various institutions and charities of the State, and a review of the new laws relating to them may be stated as follows:

At the State Prison there have been the remodeling of the old west wing, the construction of new kitchen, bakery, storehouse, punishment bay and solitary confinement cells, and the introduction of a new industry, shirt making.

The General Assembly of 1895 passed an Act, Chapter 317, establishing a State Reformatory for women, drunkards, and male criminals between the ages of sixteen and thirty.

At the School for Boys, military drill and gymnastics have been introduced and the facilities for instruction in working trades have been increased.

At the Industrial School for Girls, the finishing touches have been put upon the alterations of last year and minor improvements have been made around the grounds and buildings.

At the State Hospital for the Insane, the new North Hospital has been completed and occupied, furnishing additional accommodations for two hundred and fifty inmates. Section 487 of the General Statutes has been amended so that now patients committed as paupers or indigents, in either case, are paid for by the towns or persons committing them at the rate of $2 per week. This relieves the State of a great expense, as formerly it paid one-half the cost of maintenance of those committed as indigent.

Additions to the private Asylums for mental and nervous diseases have been made in the establishment of Grey Towers at Stamford and Fairlea at Noroton, and the Louden Sanitarium at Greenwich has been reported for the first time by the Board.

The School for Imbeciles has seen the completion of its new hospital and the addition of increased protection against fire.

The Whipple School for Deaf Mutes at Mystic has had an unsettled year and has been deserted by its former principal.

It is now conducted under the name of the Mystic Oral School.

Movements to establish public hospitals have made progress at Stamford and New Britain, and charters have been granted for the same purpose to citizens of Middletown and Winsted.

The Jails at Hartford, New Haven and Litchfield are making provision for increased cell-room and workshop accommodations, and the Windham County Jail for a general renovation.

The Temporary Homes in Fairfield and Litchfield Counties are enjoying new school buildings, and the Hartford County Home will soon receive a long-needed improvement in the same direction. A new hospital has been added and alterations made at the Windham County Home, and plans for a new building are being prepared for the Home in New Haven. The New London and Tolland County Homes have also enlarged their establishments.

New laws of importance in regard to the Temporary Homes give to the Boards of Management full guardianship of the children committed to the Homes until they reach the age of eighteen years; require the Boards to meet at least once in three months and at the annual meetings to unite with the Town Committees; authorize the appointment of special agents by the Board of Charities to recommend family homes for the dependent children and to visit them when placed therein; and establish a penalty of fifty dollars a month to be paid by any overseers of town poor who retain a child between the ages of two and sixteen years in an almshouse, when a Temporary Home is open for its reception.

Under an amendment to Section 1886 of the General Statutes, the State Prison, School for Boys, Industrial School, and Hospital for the Insane are now visited by members of the Board of Charities once in three months instead of once a month, as formerly. By the same Act, the Secretary of the Board is now required to give his whole time to the duties of the office.

CHANGE FROM BIENNIAL TO ANNUAL REPORTS.

Since 1886 it has been the practice of the Board to publish a Report biennially and to present it, with its review of work done and recommendations for legislative action, to the Governor and members of the General Assembly at the opening of each of the biennial sessions, and on that basis it was not expected that the next Report of the Board would be published until January, 1897.

In accordance, however, with the Act which was approved on July 4, 1895, and calls for a return annually, this Report is now presented, covering the period from September 30, 1894, to September 30, 1895. The unexpected change in the date of issue and the limited time for preparation, in connection with the appointment of a new Secretary from September 1, 1895, have naturally affected the usual routine of previous years, and with reference to the Report which is here presented, the Board desire to say that a more detailed Report may be expected a year hence, in time for presentation to the Governor and to the General Assembly which will convene in January, 1897.

Respectfully submitted,

ANDREW W. TRACY, Meriden,
REBEKAH G. BACON, New Haven,
MARY HALL, Hartford,
GEORGE F. SPENCER, Deep River,
HEMAN C. WHITTLESEY, Middletown,
Members of the State Board of Charities.

CHARLES P. KELLOGG, Waterbury,
Secretary.

FIFTEENTH ANNUAL REPORT

—OF THE—

STATE BOARD OF CHARITIES.

OFFICE OF THE STATE BOARD OF CHARITIES,
Room 80, Capitol, Hartford, Conn.

To His Excellency, the Governor of the State of Connecticut:

SIR:—We have the honor to submit herewith the Fifteenth Annual Report of the Board for the year ending September 30th, 1896:

THE WORK OF THE BOARD.

In accordance with Chapter 294 of the Public Acts of 1895, the Report of the Board is now prepared annually, instead of biennially, as had been customary since 1886. The Report for the year ending September 30th, 1895, was presented in typewritten form and is now printed with this year's Report for presentation to the Governor and to the General Assembly of 1897.

During the past year regular meetings of the Board have been held monthly at its office in the Capitol and special meetings, also, as occasion has required. The business then conducted has been duly recorded in the minutes of the meetings, and the reports and documents in connection therewith have been filed for reference in the Board's office.

In the exercise and performance of the Board's statutory powers and duties, regular visits of inspection have been made to the State Prison, the Connecticut School for Boys, the Industrial School for Girls, and the State Hospital for the Insane, as often as once in three months, as provided in Section 1886 of the General Statutes and its amendment, Chapter 311 of the Public Acts of 1895. Additional visits have been made in several instances, and it is the purpose of the Board to repeat them as often as occasion or expediency may suggest, with a view to keeping in touch with the work and methods of the institutions. Inspections have been made of the American School for the Deaf, the Mystic Oral School, the Connecticut Institute and Industrial Home for the Blind, the School for Imbeciles at Lakeville, the Hartford Retreat for the Insane and other Private Asylums, Fitch's Home for Soldiers at Noroton, Hospitals, both State-aided and others, the County Jails, the County Temporary Homes, and charitable institutions for the care of the indigent aged and young; fifty-nine towns, also, have been visited to inspect the almshouses or other provision made for the care of the town poor.

As directed by Statute, the visits referred to have been made in all cases without previous notice to the persons in charge. In almost every instance the visitors have been cordially received, and a commendable willingness has been shown on the part of the managers to exhibit all departments of the institutions and to give any desired information in regard to their condition and working methodss.

Efforts have been made, also, to bring about certain improvements which the Board in its advisory capacity has seen fit to recommend, and others not yet carried out are still under consideration. There is reason to believe that the majority of institutions in Connecticut comply with the requirements of humane and careful management, and those that fall below this standard are being kept under constant supervision in the hope of effecting ultimately an improved condition.

In regard to the plans noted in the last Report for additional buildings and increased facilities for certain institutions, it may be said that some of them have been accomplished already and that others are now being carried to completion. The laws enacted by the General Assembly of 1895 in relation to the dependent and defective classes of the State have been generally observed and in some instances have proved especially beneficial.

THE STATE PRISON.

Many changes have taken place at the State Prison during the past year both in the matter of enlarged and improved buildings and in the introduction of new features in the internal administration. The new bath-rooms, kitchen, bakery and store-house, which have been in use for some time, prove well adapted to their needs, while the new light punishment cells and the cells for solitary confinement are an improvement upon the provision formerly made for these purposes.

The most notable changes, however, are the remodeling of the old west wing and the new classification of prisoners introduced in connection therewith. Under this system three grades are established, of which the second includes the general body of inmates and is the one in which all new prisoners are enrolled on arrival. From this grade promotion to the first may be earned through exemplary behavior and steady labor, or reduction to the third be suffered for serious violation of rules. The members of the several grades are clad in distinguishing uniforms and are granted certain privileges or deprived of all such as the case may be. The limited number of cells available for members of the first grade does not furnish sufficient accommodations for all who are deserving of promotion thereto, and it is suggested that the number be increased by the addition of two more tiers of cells.

This system of classification has been adopted with considerable success in other State Prisons and it is hoped that it may accomplish something in the way of inspiring the prisoners with new ambitions and of improving the sullen and listless behavior that is so characteristic of many of them.

Another new feature recently introduced is the Bertillon system of measuring and identifying criminals in which a variety of physical measurements is taken of every prisoner of such nature as to insure his future identification. The uniformity of the system makes it a ready means of correspondence between institutions where it is in use.

In the matter of secular literature, it is difficult to understand why the reading of any weekly paper that is clean and healthy in tone, should not be permitted for all the prison inmates, and it is the opinion of the Board that a little more liberality in this direction would do much toward securing a more cheerful and healthy condition of mind among the prisoners.

The need of a separate ward for the insane at the Prison has been felt more urgently during the past year than ever before.

During this period, nineteen convicts have been adjudged insane and all but two, who were charges of the Federal Government, have been transferred to the State Hospital at Middletown. On the other hand ten inmates of the ward for the criminal insane at Middletown have been pronounced cured and have been returned to Wethersfield. The objections to this system are obvious and have been set forth in previous Reports. Special commissions have to be convened by order of the Governor at considerable expense to pass judgment upon all these cases both going and returning, and the temptation exists for convicts to feign insanity in order to be transferred to Middletown where the Hospital discipline is less severe and opportunities for escape are more abundant. The numerous escapes that have recently taken place there emphasize anew the evils of the existing practice.

If the Prison were provided with a separate ward properly equipped for the care and treatment of cases of insanity, there is no doubt that many of them could be cured in their incipiency. It is therefore recommended that such suitable provision be made that all convicts who become insane may be detained and cared for on the premises. Furthermore, in view of the excessively large number of prisoners who annually become insane, a number which is entirely out of proportion to the whole number of inmates, it is recommended that a scientific and exhaustive investigation be made of such cases of insanity as occur in the Prison in order to ascertain if possible the probable cause, with a view toward introducing such measures and influences in the daily life of the prisoners as shall tend to lessen the frequent occurrence of this terrible affliction.

THE STATE REFORMATORY.

Among the acts of the General Assembly of 1895 was one providing for the establishment of a State Reformatory for the custody and correction of male offenders between the ages of sixteen and thirty, tramps and habitual drunkards of any age over sixteen years, all persons convicted a third time of a jail offense, and all females above the age of sixteen years who shall be convicted of any offense punishable by imprisonment in a jail. In accordance with the provisions of the statute, a board of five directors was appointed and the sum of fifty thousand dollars was appropriated for the purchase of land and the erection of buildings.

A portion of this appropriation has been used in the purchase of a tract of land comprising about sixty acres and situated in part between Fairfield and Maple Avenues in the city of Hartford and about two miles southwest from the City Hall. The remainder of the land lies on the opposite side of Maple Avenue.

The selection of a site in this portion of the city has aroused strenuous opposition from many sources. The municipal authorities have taken steps to restrain the Reformatory Directors from building thereon, a strong memorial has been presented showing that its location there would be a serious obstacle to the previously prepared plans for the city's system of parks and parkways, and the daily press, almost without exception, has voiced public opinion in condemning the erection of the institution on the proposed site. So pronounced has become the feeling of opposition in the matter that it is gradually being directed not only against this choice of location but against the very establishment of the Reformatory itself. It would indeed be unfortunate if this much needed institution should fail of accomplishment through the course adopted by its own directors.

Realizing the need for this new Reformatory in the State and desiring only to see it so situated as to best accomplish the ends for which it is established, the State Board of Charities must declare as its opinion that such an institution should never be located within the limits of any large and growing city. Sixty acres of land will never satisfy its needs. A hundred and sixty acres, rather, should be secured in some suburban district in order that, in addition to the mechanical trades-schools, practical instruction in the various branches of farm work, also, may be given. This most healthful of all occupations should have its place with other useful trades.

It is difficult, moreover, to emphasize too strongly the necessity of railway communication with the grounds of such an institution for the transportion not only of raw materials to and finished products from the various work-shops, but also of coal and other heavy supplies needed to carry on the life of the place. The experience of reformatories in other States has clearly demonstrated the desirability of such communication, for without it the item of cartage proves a large one in the cost of conducting the institution. An attempt to use the street railway, which is already occupied in the service of passenger traffic, would be a doubtful experiment and at the best would prove a poor substitute for the more extended facilities of an established freight line.

It may be questioned, also, whether tramps and habitual drunkards over thirty years of age are suitable candidates for an institution whose chief purpose is the regeneration of younger offenders. The classes in question have usually been considered the most difficult to deal with, and their presence in the institution may prove a serious hindrance to its more hopeful efforts in behalf of the other inmates. As is generally understood, the State Reformatory was established in order to supply the proper agencies for the physical, industrial, mental and moral development of the less hardened criminals, whom there is some hope of reclaiming, by means of hygienic living, manual training in the ordinary handicrafts of life, and secular and religious instruction.

So far as the Men's Reformatory is concerned, the architects' plans for the proposed buildings show a careful study of the needs of such an institution and furnish admirable arrangements for its various departments. Before proceeding to its actual construction, however, it would be well to bear in mind that the chief desideratum of such an establishment is utility and not exterior ornament, and that thousands of dollars spent upon lofty domes, classic pillars, and ornate carvings, will accomplish little toward the reformation of criminals. The erection of a great show-place to add to the sights of a city is not the end in view. Large sums of money will have to be appropriated to construct this institution even on the basis of plain and substantial utility, and there is all the more reason therefore that wisdom and care should be shown in determining the style and materials of the buildings as well as their ultimate location.

Especial regret is felt that the proposed plans include no provision for the Women's Department as directed in the establishing statute, for the women particularly are those for whom the influences of the county jails under present conditions are most harmful, and for whom, in a large measure, the Reformatory was originally established. If one department only of the institution can be constructed at present, by all means let it be the one for women, and let its grounds and buildings be separate, as provided in the statute, from those designed for the men's department. Then let provision be made for the latter, also, as soon thereafter as practicable, for not until this two-fold Reformatory is established in suitable localities and equipped with all needful buildings and apparatus, can it be felt that the present duties of the State toward its delinquent classes are being fulfilled.

There is danger in the present controversy that the need of such an institution in Connecticut and its original purpose may be lost sight of, but that the need still exists and is growing greater every year, is evident to one who studies the present conditions of life in the county jails.

COUNTY JAILS.

Viewing the County Jails as a class of penal institutions, it may be said that they accomplish a purpose in ridding society for shorter or longer periods of time from the presence of certain classes of offenders. That they effect anything, however, in the matter of improving the moral character of their inmates, or of sending them forth more likely to become honest, self-supporting citizens, can scarcely be maintained.

In the overcrowded condition which has been a characteristic feature for so many years, there has been little attempt at any classification of the inmates, and it has been found almost impossible to subject their constantly changing population to any organized system of discipline. Tramps, drunkards and rogues of various sorts find them comfortable places in hard times in which to spend the winter months, while immature youths and especially those who are naturally not inclined to evil habits, become corrupted by their association with the older and more vicious. The short sentence often imposed provides a convenient opportunity amid decent and sanitary surroundings for the "rounder" to recover from his last debauch, and he goes out from the institution again, somewhat improved in health, but ready to yield to the first temptation of drink and evil companions. The women, especially, in the jails suffer from the lack of systematic employment and discipline, and for young girls who have just passed the age limit for commitment to the Industrial School (sixteen years), the influences are particularly harmful.

Doubtless the jails would exert a stronger deterrent influence upon many would-be offenders were their discipline more severe. As it is, the work, where required, is not laborious, the buildings are well warmed, and the food is wholesome and abundant. All the physical necessities of the inmates are provided for and the general conditions are probably those of greater comfort than many of them are accustomed to outside.

As noted in the last Report, plans were being considered at that time for extensive additions to the buildings and equipment of several of the jails. These were adopted and work on the same has made such progress during the year as to insure their early completion. Hartford, New Haven, Windham and Litchfield were the four counties principally concerned, and in each case the cell capacity of the jail has been increased, new and more commodious workshops provided, and other conveniences and improvements added. In spite of these extensive enlargements, carried out at the cost of thousands of dollars, the old condition of overcrowding will not wholly disappear and the County jails, conducted on the present plan, will still remain, as they have been so aptly styled, "schools of crime with an enforced curriculum."

Whenever the proposed State Reformatory becomes an established reality and its buildings are prepared to receive any considerable number of inmates, the population of the County Jails will be materially reduced. After that event the jails may be employed as houses of detention for persons awaiting trial in the higher courts and for the restraint of such less serious offenders as petty thieves, vagabonds and the like, in regard to whom it is recommended that cumulative sentences be imposed in the case of their second and third convictions.

THE CONNECTICUT INDUSTRIAL SCHOOL FOR GIRLS.

The Industrial School for Girls at Middletown has enjoyed another year of steady progress and, whenever visited, has presented an attractive appearance of neatness, homelike comfort and kindly discipline. No new buildings have been erected but the general renovation of furnishings has been continued among the present houses. The large room in Fessenden Hall set apart for a gymnasium will be equipped with apparatus at an early date and will provide much desired accommodations for the use of classes in systematic physical exercise.

The principal change during the year has been the abolition of the box-making industry. Although somewhat productive of revenue, it was felt to have little educational value and was seldom resumed as an occupation by the girls after leaving the School. In its place has been established a school of dressmaking under the direction of a skilled instructor where forty-eight of the older girls best adapted to the work are taught all the customary branches of the art.

The introduction of this new feature, it is believed, will help to round out the scheme of industrial training by which, in connection with their mental and moral development, it is the chief aim of the School to prepare its inmates for domestic life and honorable self-support. The other means already employed are the daily household duties of each Home and the scientific cooking-school conducted in Fessenden Hall. Domestic service is found to be about the only occupation in which the demand for workers is always greater than the supply and which readily opens good homes to the girls.

The seven Homes which at present make up the School provide facilities for the classification of the inmates with considerable care, but in order to make this system complete it is desired to establish one more Home which may serve as an intermediate step between the other Homes and positions in families outside the School. Here would be brought the girls from the several Homes who by their general deportment and improved dispositions have shown themselves worthy of promotion, and here they would be tested by the enjoyment of a period of comparative freedom to prove their fitness for the larger freedom of the outside world. In this Home there would be little discipline, but friendly instruction and sympathetic companionship, and it is believed that much would be accomplished in developing the traits of self-reliance and self-control which are often weakened by institution life. Girls who fail in the test would be returned to the Homes from which they came, while the placing out of others in families would be done chiefly from this Home.

Under the present arrangement girls who have reached the honor grade are eligible to be placed out in family homes, and when so placed, are systematically visited by the agent of the School. Records kept of the girls in their new surroundings support the conclusion that more than ninety per cent. of them do well and become respected members of the family and community.

The years between sixteen, which is the limit of age established for commitment to the School, and twenty-one often prove to be the most critical in the lives of unruly girls who might be permanently reclaimed by proper restraint and instruction at the right time. The lack of a suitable place where they may receive such influences emphasizes anew the necessity of establishing as soon as possible the proposed Women's Reformatory.

THE CONNECTICUT SCHOOL FOR BOYS.

The past year has been an unsettled one in the history of the School for Boys at Meriden, being marked by a change in the superintendency in the spring, and it may be too early yet to pass judgment upon the new regime.

The usual large number of boys has been present during the year and the School has always offered an appearance of neatness and good order when visited, but, as might be expected under the circumstances, little advance has been made in methods and resources for the general development of the inmates. The contemplated plan for the employment of a physical director to conduct systematic drills and exercises has not been carried out, and a well equipped gymnasium is still one of the urgent needs of the School. The mental and moral defects which bring boys into the custody of the School are often accompanied by closely related physical defects, and the development of a pure and healthy condition of body does much toward establishing a pure and healthy condition of mind.

As to the most desirable method of physical exercise, expert workers in this field to-day express a strong preference for the Ling or Swedish system of gymnastics. It has been proved by experience to accomplish the same results of discipline and prompt obedience as military drills and has the added advantages of producing a more thorough, all-round development and of stimulating the mind as well as the body. Military drills may become after a time almost wholly mechanical, but in the Swedish system of gymnastics it is never known what command will follow another and the attention and interest are thus sustained throughout. A thorough trial of this system is heartily recommended to the managers of the School.

Classes in working trades have been carried on during the year under the direction of practical instructors. Carpentry, masonry and painting have each engaged the services of five or six boys, the work done being chiefly in the nature of repairs to the various School buildings. Other groups are employed in the printing office, the shoe shop and the tailor shop, while a small class has received instruction in telegraphy. Squads of half a dozen each are detailed to work in the kitchen, laundry, dining-rooms, sleeping-halls, and about the grounds. In summer about fifteen boys are regularly employed upon the School farm while the inmates of the several cottages do considerable work in the vegetable gardens. From five and a half to six hours a day are spent in the various occupations.

The whole number of those who receive instruction in useful trades is small, however, in comparison with the total population of the School, and by far the greatest part of the boys, some three hundred and fifty in number, are regularly employed in caning chairs, both those in the congregate department of the main building and those in the detached cottages. Nearly six hours a day are spent in steady application to this monotonous occupation, than which there are few less inspiring to hand and brain. The graduate of an institution who has learned nothing but the art of caning chairs, on coming out to seek an honest living in the world, is at once branded as a past offender if not also suspected of being an ex-jailbird. The fact that the industry is productive of revenue to the institution does not justify its employment there. The few thousands of dollars yearly realized toward the School's support are a poor compensation for the failure to arouse the latent abilities of the boys by a more varied and interesting system of work, and will be more than counterbalanced by the future cost to the State of those graduates of the School who drift into careers of crime on account of lack of early instruction in useful occupations.

An inheritance of disease and vicious tendencies, and evil surroundings in early life are the greatest factors in producing youthful offenders, but in many cases the unruly boy is not a dull boy, and his offense may have been the result largely of the undevelopment and misdirection of his energies. Every practical expedient, therefore, should be adopted in our juvenile reformatories for discovering the latent good and ability in the inmates and for developing their physical, mental and moral natures. When one considers the elaborate provision made for instruction in various trades in the reformatories for adults, does it not seem fitting that a still greater effort should be made to prevent these youthful delinquents from ever becoming confirmed criminals? The watchwords of modern philanthropy are prevention and education.

To be sure, many of the inmates of the State School leave the institution before they are old enough to have learned a trade, but Sloyd work, which is elementary instruction in the use of hands and tools, is adaptable to young pupils and should be introduced throughout the School. It has proved successful to a marked degree in other institutions of this class, in stimulating and developing hands, eyes, and brains. This should be supplemented by advanced manual training in the elements of a variety of trades, working in wood, iron, etc., which should be participated in by every boy who shows any adaptability thereto.

Only in the adoption of some such system as this, can there be any reasonable expectation that the boys who go out from the State School will ever become industrious, self-sustaining citizens. The cost of equipping and conducting the School with such features would be considerable, but there is reason to believe that the investment would prove a profitable one.

A noticeable fact in the commitments to the School is the large proportion of those committed on the charge of "incorrigibility." This is a rather vague term and may mean much or little, and it would be well if a careful investigation of all such cases could be made with a view to improving the home discipline, before the Courts sentence the boys to several years' association with offenders of various ages and degrees of guilt.

After the boys attain the Honor Grade they are eligible for dismissal on probation to their friends, to other family homes or for indenture as apprentices to mechanics, carpenters and farmers. When so released, they are expected to report their condition to the School every six months, but the rule is not uniformly obeyed and is of little value. As the School is the legal guardian of the boys during their minority, it would seem necessary to the satisfactory performance of its duty that some organized system be introduced of visiting at regular intervals boys who have been released and of thus keeping them under friendly supervision until they come of age.

THE STATE HOSPITAL FOR THE INSANE.

The management of the State Hospital for the Insane during the past year has been characterized by the same degree of expert care and efficient administration as heretofore and has given relief to many hundred wards of the State.

The opening of the new North Hospital in 1895 has provided additional accommodations for two hundred and fifty patients, making the total capacity of the institution somewhat over seventeen hundred. The demand for admission from all parts of the State has also steadily increased until the enlarged accommodations have been fully occupied.

If this pressure continues unabated, there will soon be need of another addition to the Hospital buildings and the advisability will be discussed of still further enlarging this great institution or of establishing another in some other part of the State. The question thus arises whether the insane wards of the State may not best be provided for in two institutions, one a hospital for the scientific treatment of acute cases, and the other, an asylum for the restraint and humane care of the so-called chronic or incurable cases.

Under the present conditions, a large part of the time and energy of the superintendent and assistant physicians is necessarily absorbed in the routine work of the institution, the general supervision of the Hospital and its inmates, the recording of required statistics and the daily visiting of the hopelessly insane patients. Although the number of physicians and assistants has been added to from time to time, in proportion to the increasing number of inmates, there is nevertheless a liability in the steady growth of the institution that too little attention may be given to the scientific study of individual cases.

The experiment of employing a specialist in pathological study and laboratory work, which was conducted for a year or more, was discontinued in the fall of 1895. When such study is directed solely to the examination of post-mortem conditions, it is found that one institution does not furnish a sufficient number of cases to warrant the employment of an expert in that branch alone. Pathological research is now conducted by the regular staff of physicians as opportunity offers, and improved facilities have been provided during the past year by the erection of a new receiving house and operating room in a retired part of the grounds.

The inmates of the Hospital are classified according to their bodily and mental conditions, the acute cases being retained for treatment in the main building, while the so-called chronic or incurable cases are distributed among the several other hospitals. As a result of housing several hundred of the chronic insane in each building under the general direction of one physician in charge, it naturally follows that the greatest part of the personal care and attention given to the patients is at the hands of the attendants. It therefore devolves upon the Hospital management to exercise the greatest care in selecting these minor officials. They should be persons of unquestionable character, firm but kind in their discipline and especially qualified for their work. No possibility of abuse of an inmate should exist, and any attendant found guilty of ill-treating a patient under his charge should be dismissed at once.

The insane convicts transferred to the Hospital from the State Prison are a class in regard to whose care and discipline many difficulties arise, and much regret is felt that valuable space needed by innocent persons should, by order of law, be given up to their use. The less rigorous discipline and the more frequent opportunities for escape at the Hospital are a temptation for criminals to feign insanity, and the greatest care should be exercised in employing them outside the enclosures. This should be permitted only when they may be so closely watched and attended by a sufficient number of guards as to prevent any possibility of escape.

Epileptics form a considerable number among the inmates of the Hospital and it may be questioned whether their association in the same wards with the mentally diseased is not harmful to both classes. Their distressing attacks must have an exciting effect upon the unsound minds about them, and their own condition, under such circumstances, must tend to become chronic. It would seem advisable that all cases of epilepsy should be domiciled in a ward by themselves, or, better still, in a separate cottage.

The administration of the Hospital continues to be marked by careful economy in all departments. Every resource for economic support has been made use of until the price of board has reached the low figure of two dollars and eighty cents per week, which covers the whole cost of maintenance including payroll and repairs. The grounds of the institution have been maintained in their customary neat and attractive fashion, and with their well-kept lawns, bright flower-beds and winding paths, are pleasing to inmates and visitors alike.

PRIVATE ASYLUMS.

So far as has been ascertained, the number of Private Asylums in the State for the treatment of insane patients has not been increased during the past year, but, on the contrary, has been diminished by one, the Darien Sanitarium having been consolidated with its branch establishment at Stamford. Besides the Retreat for the Insane at Hartford, there are at present eight of these institutions in the State sheltering an average number of one hundred and ninety inmates.

Each Asylum is in the charge of a recognized physician except the Louden Sanitarium at Greenwich. As noted in the last Report this is dependent for medical attention and services upon the occasional visits of a local physician. Such a practice cannot meet with approval, as the unsound mental and often bodily condition of the inmates should be under the constant supervision of one who is skilled in medical science and in the treatment of mental diseases. Upon the discovery of its existence by the State Board a year ago, the manager of this establishment hastened to effect a formal compliance with the statute law by securing the commitment of its inmates to his care by a court of probate, but the presence of this institution in the State emphasizes more strongly than ever the need of more stringent legal requirements for the establishing of such asylums.

At present, anyone who so desires is free to set up in Connecticut an asylum for the reception and treatment of the insane or persons of unsound mind without the formality of even applying for permission from any proper authority. The only obligations required by statute of the keepers are that they shall make written returns quarterly to the State Board of Charities giving therein such statistics and other information as the Board may prescribe, and shall be visited for the purpose of inspection by a representative of the Board as often as once in six months. A majority of the inmates come from outside the State and a considerable proportion of them are classed as voluntary patients, many of whom are not insane. The superintendents of the Asylums declare it to be their custom to receive no patients, other than the voluntary cases, except upon commitment according to the law of the State from which they come.

In other States, however, no person can legally establish or maintain a private asylum for the care of the insane without first obtaining an official license from the Governor or from the State Commission in Lunacy, and it is therefore recommended that some similar measure be adopted in this State for the protection of members of this unfortunate class. The requirement of a formal license would serve as an official indorsement of all rightly conducted asylums as well as a check upon the establishment of improper places and their possible abuses.

CENSUS OF INSANE AND COMMISSION IN LUNACY.

That the number of insane persons under restraint in the State of Connecticut has increased considerably in recent years, may readily be seen by a little study of the institutions provided for their care. Their present distribution is very nearly as follows :

In State Hospital for the Insane	1780
In Hartford Retreat for the Insane	140
In Private Asylums	190
In Town Almshouses	290
	2400

Under the last heading are many chronic cases who have been under treatment at the State Hospital but who have been returned to the almshouses, when, on account of the overcrowded condition of the institution, their removal became necessary in order to provide accommodations for acute cases in need of immediate treatment. Others have gradually become insane but have never been examined and adjudged so by any competent authority. Many of both classes would doubtless be benefitted by the remedial treatment of a hospital had our State institution sufficient room for them.

The total number of insane persons *under restraint* is a large one but does not necessarily prove that this unfortunate class is growing in disproportion to the growing population of the State. Its increase may be accounted for in a considerable degree by the enlarged accommodations provided for the reception of patients at the State Hospital and the reduced cost of maintenance there, by which many who formerly would have been kept at home are now placed in the institution; and, also, by the increased number of Private Asylums, most of whose inmates are not residents of this State.

In addition to the numbers of insane persons mentioned above, new cases frequently develop in establishments such as the State Prison, County Jails, Hospitals, etc., in which large numbers of persons are confined. The present provision for the diagnosis and restraint of such cases is temporary and insufficient.

In recognition, therefore, of the importance of securing for all members of this defective class, scientific and humane treatment, the recommendation made in January, 1895, is herewith repeated, viz:—that a Commission in Lunacy be appointed to act in connection with the State Board of Charities, and be authorized to grant or cancel licenses for the establishment and maintenance of private asylums, to ascertain that the commitment and detention of patients is in accordance with the provisions of the statutes, to examine and prescribe for new cases in the State Prison, County Jails and other institutions, and to exercise a general supervision in the interest of insane persons throughout the State.

THE LAKEVILLE SCHOOL FOR IMBECILES.

No important alterations have been undertaken here during the past year, but the School has enjoyed another period of continued effort and progress. The limited capacity of the School, containing, as it does, comfortable accommodations for only one hundred and fifty inmates, often compels the refusal of applications for admission and thus restricts the scope of the remedial and educational work which might be done for unfortunates of this class. New and more commodious school-rooms are urgently needed as well as increased facilities in other departments.

The School is ably and economically conducted and the aid received from the State has been wisely expended. The excellent results already accomplished and the still greater preventive service that might be rendered with increased facilities, warrant the recommendation that a broader and more liberal policy be adopted in the interest of the institution.

It is greatly desired that the number of buildings be increased sufficiently to furnish accommodations for all suitable applicants and to admit of classifying the inmates on the so-called colony plan. Under this system separate buildings should be provided for the care of teachable imbeciles, epileptics, and custodial cases, for in this way only can each class receive the treatment best fitted to its needs and the greatest measure of preventive and positive service be accomplished.

THE AMERICAN SCHOOL AT HARTFORD FOR THE DEAF.

The American Asylum for the Deaf at Hartford has undergone a change of name during the year in the substitution of the word "School" for "Asylum," making its present corporate title read, "The American School at Hartford for the Deaf."

A still more important change under consideration is the sale of the present property on Asylum Avenue and the removal of the School to some quieter location in the suburbs of the city. The desirability of this step is apparent in many ways. The present location, near the center of the city, would prove extremely valuable as sites for residences and, by the removal to new and more extensive grounds, a system of detached cottages could be erected and the advantages of semi-rural life be secured for the inmates. The buildings now in use are old and ill-arranged and lack many of the features considered desirable in modern institutions.

As has been the custom of the School for many years, instruction in articulation and lip-reading has been continued in connection with the manual method and sign language and gratifying progress has been shown by the pupils in all branches. The value of such facility in intelligible speech as the deaf are capable of acquiring for use with hearing people is clearly recognized, but the power is limited at the best, and it still remains to be proved that it can ever supplant the sign and manual methods as an efficient means of imparting and receiving information and of developing the intellectual faculties. Years of experience at the American School have shown the combined method of oral and sign instruction to be of great practical value.

Manual training has been carried on in the cabinet and shoe shops and about fifty boys have received instruction which will prepare them on graduation to secure places at remunerative trades.

In its present buildings, even, the School has accommodations for a greater number of pupils than at present enrolled and it welcomes and freely provides for deaf children of all classes, offering to them superior advantages for careful classification, industrial training, mental development and the acquisition of speech.

THE MYSTIC ORAL SCHOOL.

The Mystic Oral School, as the Whipple Home School for the Deaf has been known since its reorganization after the sudden departure of the former principal, completed its first year under the direction of her daughter, Mrs. J. I. McGuigan, the present superintendent, in June last. Mrs. McGuigan resides in Philadelphia and visits the School whenever its affairs require her presence.

The School has been visited several times by representatives of the Board of Charities and its work and general condition have been carefully noted. Examination was made by the visitors of the scholars' proficiency in articulation and lip-reading and in such general subjects as arithmetic, language, etc., and their attainments in all branches were found to be slight. This confirmed the statement made to the Board by the teacher in charge, that the pupils, many of whom had been in the School for years, at the time of her arrival showed little progress in intellectual development or the acquisition of speech made during their stay there, and that it was found necessary to start practically anew in almost all cases. It is understood, however, that better results are hoped for under the direction of this teacher who came into the School with the present regime. The pure oral methods of instruction are followed in teaching all branches. The only manual training received is some small work in wood-carving and no opportunity has yet been offered for learning useful trades.

Although somewhat improved by recent repairs and new furnishings, the School buildings are old and are not up to the standard of other State-aided institutions. The State, moreover, is not represented in the management which is in charge of a private individual, and there is no board of trustees responsible for its affairs. Four residents of the town, however, have been appointed as a board of visitors to the School, and the appropriation of State funds has been continued. It has been stated that an effort would be made to return gradually to the State the thousands of dollars fraudulently obtained during the former administration.

In view, therefore, of the School's unofficial system of management, its limited facilities and the lack of provision for acquiring useful trades, and in view, furthermore, of the fact that it has not yet been shown that the State of Connecticut needs two schools for the instruction of its deaf wards, the recommendation previously made is here repeated, that the appropriation of State funds be withdrawn from the Mystic Oral School and that suitable provision for the State pupils therein be made elsewhere.

THE CONNECTICUT INSTITUTE AND INDUSTRIAL HOME FOR THE BLIND.

Since the establishment of the State Board of Education of the Blind by an Act of the General Assembly of 1893, all blind persons in the State are entitled to receive such instruction in the simple branches of education and for such length of time as may be deemed expedient by the Board, the expense to be paid by the State to an amount not exceeding three hundred dollars for each person in any one year, except that where the parents of such blind persons are not able to provide for their clothing and transportation, an additional sum of thirty dollars a year may be allowed for those expenses.

This Board of Education of the Blind consists of four persons, the Governor of the State and the Chief Justice of the Supreme Court, *ex-officio*, and a man and a woman, one of whom shall be a blind person, and by the act of establishment, it is authorized to contract with any institutions having proper facilities, for the education of blind persons from this State.

The Connecticut Institute and Industrial Home for the Blind is a private institution in the city of Hartford, incorporated under the general law of the State in the year 1893, with which the Board of Education of the Blind has contracted since that time for the care of its blind wards. This corporation is provided with a board of trustees, six in number, upon which the Board of Education of the Blind is represented by its two lay members who hold, also, the chief executive offices of the institution. There is also an Advisory Board composed of twelve citizens of Hartford and vicinity who are entrusted with the investment and custody of all gifts to the institution exceeding two hundred dollars in amount, and who have general powers of supervision and recommendation.

Two distinct departments are included in the make-up of the Institute. The one, located on Asylum Avenue, comprises a children's kindergarten and a home for young women, while the other, located on Wethersfield Avenue, is designed to furnish industrial training for men and women of any suitable age. The industries so far carried on are furniture repairing, mattress making, and the manufacture of brooms. A general store and a printing office, also, are conducted in the building.

The organization and equipment of the institution were secured in the first instance through private contributions, the aid of friendly societies and the amounts received from concerts and entertainments given by the blind. There has thus grown up an organized concert company composed of inmates of the Institute who spend a good share of their time travelling about the State and giving entertainments and exhibitions of their proficiency in various kinds of work. As stated by the management, "not more than two or three days a week during the winter months are spent in these trips." Several of the pupils are in this way constantly interrupted in their application to trades in the Institute and their progress toward self-support retarded in consequence. Others devote almost all of their time to the practice of music with a view to making that a means of livelihood either in the Institute concert company or elsewhere. The Institute was last visited by representatives of the Board of Charities about a month after the date of opening for the fall term, and on that occasion it was found that a number of pupils who had been travelling all summer on a concert tour throughout New England, were then at home visiting friends, and on their return were to start at once upon another trip of a week's duration to various towns in this State.

It may be questioned in many cases, whether the intent of the law for them to receive "instruction in the simple branches of education," is thus being carried out, and whether the State would be willing to support its wards for several years if the final result were to be the production of a band of travelling musicians. There is reason to believe that certain pupils have been a year or more in the Institute and after that time were scarcely more proficient in the trades at which they were nominally employed than when they first entered.

A custom has been introduced, also, of making allowances of money to a number of the pupils, varying in amount from one to four dollars a week, and further allowances to the performers in the concerts. It is claimed that this is done in the hope of cultivating habits of industry and thrift with a view to their purchasing some day the tools of trade with which to start in business, but unfortunately, the reverse of this is often the case, and it is known that the money is spent many times in ways which are harmful both to the spenders and to the discipline of the institution.

Under the present arrangement, the only superintendent residing in the Institute is a blind person, who, no matter how faithful he may be, is unable, nevertheless, by reason of his infirmity to preserve the necessary discipline among the inmates, some of whom spend a considerable part of their time in idleness. This lack of systematic direction and efficient discipline has been a noticeable feature of the Institute whenever visited, and on no occasion has the number of persons regularly employed in the workshops appeared proportionate to the whole number of inmates supported.

The allowance made by the State of $300 to $330 a year for each blind person is liberal when compared with the amounts given for the support of other classes, namely, $200 for the Deaf and $104 for State wards in County Homes, and this aid has been granted to the Institute continuously since its organization. Allowances have been drawn at this rate for fifty-two pupils here during the year, and for twenty supported at the Perkins Institute in Boston, and an additional sum of $15,000 appropriated by the last General Assembly, has been spent in enlarging the buildings of the Institute, the total forming a heavy drain upon the State treasury for the support of this class of defectives. Since its organization, moreover, the Institute has been in receipt of private donations and proceeds from its concerts and entertainments up to September 30, 1895, of more than $12,000.

The attention, therefore, of the trustees is called to the fact that this institution is annually in receipt of large sums of money from the State and that the results of its training in industrial and educational branches do not at present appear commensurate with the amounts expended; and it is further urged that measures be adopted in its management, having especial reference to effective discipline and the systematic and uninterrupted education of its inmates.

HOSPITALS.

The most recent addition to the list of these important institutions in the State is the Stamford Hospital which was opened for the reception of patients in the month of April. The movement to establish a public hospital in New Britain, which was noted in the last Report, has been advanced by the purchase of a desirable piece of property but it has been thought best to defer the opening until sufficient money has been raised to insure its successful operation. The incorporators of the hospital societies in Middletown and Winsted have met for organization during the year and have begun the collection of subscriptions for their respective building-funds. When these institutions are completed, there will be public provision for hospital purposes in each of the seventeen cities in the State with the exception of Ansonia, Derby and Rockville whose requirements have so far been met by the Hospitals in New Haven and Hartford.

The Hospitals already in service throughout the State have made the usual repairs and minor improvements during the year and, whenever visited, have given evidence of good management and careful treatment of patients. Their work is steadily increasing and the accommodations are in most cases taxed to their full capacity. In the operation of these State-aided institutions whose affairs and finances are managed by boards of representative men, there is reason to believe that the State's funds are wisely and economically expended.

In this connection, it is desired to draw the attention of the managers and general public anew to the fact that the provision of the statute is that the annual appropriation in each case is to be "expended for the support of charity patients and so used as to benefit the different towns as they may from time to time make application."

COUNTY TEMPORARY HOMES.

The General Assembly of 1895 enacted several laws in regard to the County Temporary Homes whose observance has remedied in a degree some of the more striking defects which had appeared in the previous working organization of these institutions. The Boards of Management of the Homes in all but one of the Counties have complied with the requirement to hold quarterly meetings and at the meetings in the fall months have called in the members of the town committees in conference. The provision raising from sixteen to eighteen years the age-limit until which the Boards of Management have full guardianship and control of the children committed to the Homes, has enabled them to extend a protecting influence over these dependent children during what is oftentimes the most critical period in their lives. The power to give certain of them in adoption as specified in the statutes has been exercised in several instances. In accordance with an Act providing for the appointment by the Board of Charities of special agents to assist in recommending suitable family homes for the children and in visiting them when placed therein, two persons have been chosen to serve in that capacity.

Among the most important and at the same time the most difficult features in connection with the working of the Homes, have always been the successful placing out of the children and a systematic course of visiting them thereafter. Hitherto, these duties had devolved entirely upon the Boards of Management, whose members live at a distance and show varying degrees of interest, and upon the town committees who give their services voluntarily. Many of the latter discharge their duties faithfully and well and deserve commendation for their valuable assistance. Others, however good their intentions may be, are occupied in their own affairs, and are consequently unable to look after the children placed with families in their towns.

The appointment of the special agents referred to is a step in the direction of securing discriminating care in the selection of family homes and of maintaining systematic oversight of the children there placed, and has already produced excellent results. The agents act in friendly co-operation with the Boards of Management and the town committees in the several counties and have succeeded in securing a more active placing out of the children from the Temporary Homes and a more thorough supervision over them thereafter. A complete record is kept of all children received and placed out by means of a card catalogue which readily shows the location of every child who is under the charge of the Homes. The importance of providing some such official and responsible method of supervision is shown by the large number of family homes that are secured annually for these dependent children, the statistics of which, with other information, may be found in the chapter on County Homes.

The most noticeable addition to the buildings of the County Homes made during the year is the new schoolhouse at the Home in Hartford County which was completed during the summer and now furnishes convenient and attractive facilities for education long needed there. At the Fairfield County Home plans have been considered for the erection of a separate and commodious hospital building and the work of construction will probably be begun in the spring.

Although it is difficult to deny the desirability of such features in their equipment, there is, nevertheless, a liability in the addition of large and expensive buildings to the Homes, that the residence of their inmates may become more permanent than was ever intended. On the first day of October, 1896, the eight County Homes were sheltering a population of about six hundred children between the ages of two and eighteen. Some of them have remained in the Homes for years, and others, who have been placed out and have appeared to be misfits, have been returned repeatedly. Without doubt the County Homes are much superior to the surroundings from which many of the children originally come, both in matters of physical comforts and improving influences, but institution life can never take the place of individual home training and every effort, therefore, should be made to secure suitable family homes for these unfortunate children.

A plan has been recently adopted in New Haven County to make the Home strictly temporary in character by boarding many of the children in selected family homes, not more than four being allowed in any one family. In this way the number in the County Home is greatly reduced and the Home itself becomes a mere receiving station to shelter the children only until they are transferred to families either at board or otherwise. There are manifest dangers in this system, also, and still greater care should be exercised in the selection and supervision of family homes where a pecuniary advantage is gained from receiving the children. Plans had been drawn for new and extensive buildings at the New Haven County Home but their erection has been postponed indefinitely.

It was noticeable that shortly after the organization of the Homes a tendency was developed to commit children through the courts under the provisions of Section 3638 of the General Statutes, the moving cause being undoubtedly the fact that in such cases the cost of support would be borne by the State rather than by the towns from which the children came. The tendency has increased as years have passed, and town officials have become more familiar with the working of the Homes and the letter of the statutes, and it has now reached a point where the practice of committing through the courts is well nigh universal.

This feature in the application of the statute and the increase in expenditure which it would entail upon the State, were brought before the notice of the Legislature several years ago.

The practice has been allowed to continue, however, and in the absence of legislative action it may be assumed that the State acquiesces in the arrangement, or, at least, is not opposed to it.

One natural effect is that so long as children can be placed under the protecting care of the Homes at the expense of the State there will be a greater willingness on the part of the town officials to co-operate in the work of child-saving. They will more readily assist in separating children from exposed or degraded surroundings, and in placing them in Homes which will temporarily protect them and open a way for their development as useful citizens so long as it costs the town nothing. Each town ought to perform this service of itself, for the sake of the children and the future welfare of the community, but history shows that it will not be done while the existing statutes remain in force. It were much better, however, that the State should bear the burden than that the children should be neglected and allowed to suffer from want of proper care, or to grow up in the midst of evil associations. The State bears a share of responsibility towards its dependent classes and in "promoting the welfare of neglected and exposed children, and in securing to society immunity from the depredations and expenses of youthful offenders it takes practical measures for the cure of pauperism and diminution of crime."

In general it may be said that the County Homes are accomplishing to a considerable degree the ends for which they were established and it is hoped that the amount spent by the State for their support will yield a fitting return in the exemplary character and productive usefulness in later years of the children so assisted.

ALMSHOUSES.

Almshouses for the care of the town poor are maintained in eighty-five of the one hundred and sixty-eight towns in Connecticut. Almost all of these have been inspected since the last Report by representatives of the Board who have visited, also, a number of other towns which make different provision for the purpose.

With reference to the general condition of the almshouses, little can be said that differs from previous Reports. No two houses are alike; they include the good, bad and indifferent and represent widely varying standards of management. A few are beyond reasonable criticism in matters of good order, cleanliness and general comfort; others which now show signs of indifference and neglect might be easily improved by the application of proper efforts under authoritative direction; while at the bottom of the list there remain a small number which are positively unfit for use and ought to be abolished.

In the majority of places it may be said that the quarters reserved for the poor furnish a fair degree of comfort and that the food provided is sufficient and wholesome. In New London County, however, it was discovered that a number of almshouse keepers, even in some of the larger towns, make a practice of supplying but two meals a day to the inmates during the winter months. The need of food to maintain the vitality and heat of the physical system is certainly greater in cold weather than in warm and it is the opinion of the Board that the dependent poor of every town should receive the usual quota of three meals a day in all seasons.

The defects in almshouse arrangements which have been chiefly noticed are the lack in several instances of sufficient separation of the sexes, inadequate water supply and facilities for bathing, insufficient provision for heating halls and rooms which must be bitterly cold in the winter season, and the absence of any organized effort to keep the able-bodied "old-timers" regularly employed.

As noted in the last Report, the inmates are a difficult class to care for. Many of them are old, infirm and feeble-minded and often untidy, unreasonable and lazy. It is therefore all the more necessary that the keepers shall be persons of intelligence and discretion, who will act humanely and give due attention to the needs of the inmates and the condition of the premises. It too often happens that the position is made one of political preferment and that a keeper has no sooner acquired a useful knowledge of its workings from practical experience than he is retired in favor of some friend of the new local administration. This position, like many others in municipal government, should be kept free from the influence of partisan politics.

The Selectmen are frequently as much responsible as the keepers for the condition of the almshouses. Their tenure of office is short and uncertain and the desire to make a favorable showing in the town's finances often influences them to overlook needed improvements. It is fitting to acknowledge, however, that in several instances Selectmen have received suggestions from the Board with favor and have promptly put them into effect.

Few violations of the law forbidding the retention of children between the ages of two and sixteen years in almshouses have been discovered and in almost every instance the Board has been successful in securing their prompt removal to more suitable places. The few children permitted to remain are almost all cripples or sufferers from incurable diseases whom the County Homes and Hospitals do not receive and for whom, as yet, no special provision has been made.

It is desired to call attention here to Section 3310 of the General Statutes which provides that "all paupers shall be supported at some place or places within the town to which they belong, and it shall not be lawful for any town, or the Selectmen thereof, to remove any pauper out of the town to which such pauper belongs to be supported in any other town." In direct violation of this law some six or more towns in the State send a part or all of their dependent poor to be supported at the Almshouse for State Paupers at Tariffville. This is a private establishment with which the Comptroller contracts for the support of the comparatively small number of State paupers in Connecticut in the absence of any State Farm or Almshouse. In its general equipment and system of management, however, it is not fitted to care for large numbers of persons, and it is therefore recommended that provision be made for enforcing the requirements of the above law and that the Almshouse at Tariffville be thus restricted to the care of those paupers who have no settlement in any town in the State.

OUT-DOOR RELIEF.

As stated in the last Report of the Board, the practice is still followed in the towns and municipalities of the State of assisting people in their homes, who are poor and desire assistance from public funds, and who will apply for as much assistance of that sort as they can obtain, so long as they are not obliged to go to the almshouse. The total cost in cash, provisions, etc., to the towns for out-door relief is more than $500,000 per annum.

Many of those who apply for public assistance are undoubtedly deserving cases of worthy people who have met, it may be, with unexpected and unavoidable misfortune. They do not rightly belong to the almshouse class, and if given temporary relief in such an emergency will tide over their trouble and again become self-supporting. For those, however, who are constitutionally lazy and shiftless, who are in a feeble condition from lack of wholesome exercise and whose families have been on the pauper list for generations, the almshouse is the only proper place. If out-door relief were denied to such people and they were instructed to move on to the almshouse, it would probably be found that rather than adopt that alternative they would immediately undertake the unaccustomed duty of supporting themselves.

In cities where charity organization societies are in successful operation and the overseers of the poor endeavor to co-operate with them, it is found that a great saving is effected in the amount spent for public out-door relief. New Haven is a notable example of this where the amount so spent in a year has been reduced by this means from $26,000 to $16,000.

PRIVATE PROVISION FOR AGED AND YOUNG.

Although not in receipt of public moneys and therefore not included in the category of public charities, the number of Private Homes throughout the State for the care of the dependent aged and young supplement in a gratifying manner the work of the public institutions provided for these classes. On this account and in order to make a more complete record of charitable effort in the State, it has been customary during recent years to visit these establishments occasionally and to include a brief description of them in the Board's Report.

The number of these institutions to come under the notice of the Board has not increased within the last two years but new and enlarged buildings have been added to several of those already established. Pleasant accommodations and home-like comfort are characteristic of most of them and under their sheltering roofs several hundred persons find needed protection and care.

With reference to the conditions of the organization of these institutions, however, it is to be regretted that the scope of their work is so closely confined, being generally governed by denominational differences, local sentiment and limitations in deeds of trust in the case of those founded by bequests.

NATIONAL CONFERENCE OF CHARITIES AND CORRECTION.

The twenty-third annual session of the National Conference of Charities and Correction, which was held at Grand Rapids, Michigan, in June, 1896, was attended by two delegates from the Connecticut State Board who bore also credentials from the Governor as representatives of the State. The Conference was largely attended, about five hundred members being present, and the various meetings were full of interest and profit. A most cordial reception was given to the delegates by the citizens of Grand Rapids and every provision was made for their comfort and convenience.

The mere gathering together of so many hundred persons engaged in the varied but allied branches of philanthrophy and reform is in itself an inspiration for renewed and better effort throughout the year, while in addition to the instructive addresses and discusssions, the personal meeting with skilled workers in all departments and the interchange of ideas and methods are experiences of real value. It would be well for the progress of humanitarian work in Connecticut if more of the persons interested therein could attend the sessions of these Conference that are held within a reasonable distance.

The Conference of 1896 was addressed by able thinkers and workers from all parts of the country, many of whom sounded the key-note of modern philanthrophy—more preventive work through legislation and other forces. The Conference of 1897 will be held in the city of Toronto, and the Connecticut Board is represented among its officers by the appointment of one of the delegates on the Committee on Reports from States and Territories and of the other as one of the Secretaries of the Conference and Corresponding Secretary from the State of Connecticut.

On the return from Grand Rapids, stops were made at Buffalo where the delegates visited the Erie County Jail and Penitentiary, at Elmira where an afternoon of great interest was spent with Mr. Brockway at the State Reformatory, and at Auburn where inspection was made of the State Prison. At all of these places much valuable information was gained in regard to modern penal and reformatory methods.

In August a delegation from the Board spent a few days in eastern Massachusetts for the purpose of examining certain institutions in that Commonwealth. A conference was held with members of the Massachusetts State Board of Lunacy and Charity at their offices in the State House and the fullest opportunity was furnished for a careful examination of their methods of work. Visits were made to the State Prison, the Massachusetts Reformatory for Men at Concord, the Reformatory Prison for Women at Sherborn, the Suffolk County Jail, the Lyman School for Boys at Westborough, the State Industrial School for Girls at Lancaster, the State Almshouse at Tewksbury, the School for the Feeble-Minded at Waltham, the McLean Hospital for the Insane at Waverly and the Asylums for the Insane at Worcester and Danvers. The State Inspector of Institutions kindly accompanied the visitors to several of these places and greatly assisted them in obtaining a comprehensive idea of their scope and methods. Massachusetts has an established reputation for the intelligent and progressive management of its reformatory and charitable institutions and many points were gained in regard to their manner of operation which, with modifications, might be applied advantageously to institutions in Connecticut.

EXPENSE TO STATE AND TOWNS.

In this State with a population in 1890 of 750,000, it is known that the following institutions are maintained for the restraint and care of its delinquent, defective and dependent classes. For

Criminals and Offenders, -	11	(State Prison and County Jails).
Juvenile Offenders, - -	2	(School for Boys and Industrial School).

The Insane, - - - -	10	(State Hospital, Retreat, 8 Private Asylums).
The Feeble-Minded, - -	1	(School for Imbeciles).
The Deaf, - - - -	2	(American School and Mystic Oral School).
The Blind, - - - -	1	(Institute and Industrial Home).
The Sick and Injured, - -	18	(Hospitals, Public and Private).
Old Soldiers, - - - -	1	(Fitch's Home for Soldiers).
Dependent Children, - -	8	(County Temporary Homes).
Paupers, - - - -	86	(Town Almshouses, Almshouse for State Paupers).
The Aged, Private Provision,	15	(Old People's Homes).
The Young, Private Provision,	13	(Orphan Asylums and Homes).
Total, - - -	168	

The amount of State aid which has been applied to the support of a part of the institutions in the above list was, in 1895, $588,721, and in 1896, $662,329.

The amount paid by towns for the relief and support of their poor population was, in 1894, $813,275 and in 1895, $780,104.

The unusually large expense for poor relief in 1894 was doubtless due to the business distress of the preceding year, but, as a rule, there is a steady increase in the amounts spent by State and towns year by year, and the total makes a large sum for a State of the size and population of Connecticut. Nevertheless, certain institutions are still in need of more generous appropriations for the successful accomplishment of legitimate and desirable purposes, and the conclusion is thus necessarily reached that, as shown in the foregoing review of the respective institutions, greater economy should be exercised in some directions and greater liberality be shown in others.

Respectfully submitted,

ANDREW W. TRACY, Meriden.
REBEKAH G. BACON, New Haven.
MARY HALL, Hartford.
GEORGE F. SPENCER, Deep River.
HEMAN C. WHITTLESEY, Middletown.

Members of the State Board of Charities.

CHARLES P. KELLOGG, Waterbury,
Secretary.

EXPENSE TO THE STATE

—FOR THE—

DELINQUENT, DEFECTIVE, AND DEPENDENT CLASSES.

FOR THE TWO YEARS ENDING SEPTEMBER 30, 1896.

	YEAR ENDING SEPT. 30, 1895.	YEAR ENDING SEPT. 30, 1896.
Connecticut State Prison, - - -	$44,685 44	$43,782 50
" " " Building,	———	20,000 00
" " Reformatory, "	———	19,164 43
" Industrial School for Girls,	41,329 25	40,784 82
" School for Boys, - -	71,642 02	70,461 95
" Hospital for Insane, - -	70,916 49	60,380 52
" " " " Building,	30,000 00	———
" School for Imbeciles, - -	15,263 53	16,690 05
" " " " Building,	———	3,500 00
Hartford Retreat for Insane, - - -	2,408 02	2,377 98
New Hampshire and Rhode Island Hospitals for Insane, - - - - - -	775 18	208 31
American School for Deaf, - - -	5,824 68	13,957 41
Mystic Oral School, - - - -	———	4,249 66
Perkins Institute for the Blind, - -	6,435 60	5,935 45
Connecticut Institute for the Blind, -	12,109 84	14,023 22
" " " " Building,	———	14,970 44
State Board of Education of the Blind,	3,069 62	3,367 42
New Haven Hospital, - - - -	5,000 00	5,000 00
Grace Hospital, New Haven, - -	2,500 00	*7,500 00
Hartford Hospital, - - - -	5,000 00	5,000 00
Bridgeport Hospital, - - - -	5,000 00	5,000 00
Memorial Hospital, New London, -	———	5,000 00
Backus Hospital, Norwich, - -	———	4,583 33
Danbury Hospital, - - - -	3,500 00	5,000 00
Meriden Hospital, - - - -	3,000 00	†2,250 00
Waterbury Hospital, - - - -	———	2,500 00
Norwalk Hospital, - - - -	2,500 00	2,500 00
" " Building, - -	5,000 00	———
Day-Kimball Hospital, Putnam, Building,	5,000 00	———
Stamford Hospital, Building, - -	———	25,000 00

Fitch's Home for Soldiers,	70,000,00	60,000 00
" " " " Building,	7,800 00	14,700 00
Soldiers' Orphans,	4,888 93	4,417 31
Jails, Eight Counties,	109,201 11	119,072 87
Temporary Homes, Eight Counties,	51,327 26	56,580 71
State Paupers,	4,544 64	4,371 38
Total,	$588,721 61	$662,329 76
Total for year ending Sept. 30, 1894,		$576,727 58
Total for year ending Sept. 30, 1893,		$518,454 88

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*One and a half years. †Three quarters of a year.

THE CONNECTICUT STATE PRISON, WETHERSFIELD.

Under the control of a Board of seven Directors appointed by the Governor with advice and consent of the Senate.

MR. JABEZ L. WOODBRIDGE, *Warden.*

Visited monthly by two members of the Board until August, 1895, and quarterly thereafter.

The Connecticut State Prison is located at Wethersfield, four miles south from Hartford, and is easily reached by electric cars which pass the Prison grounds. The buildings are of brown stone and brick, placed well back from the street, and are surrounded by twenty-six acres of land extending from the street in front to the Connecticut River in the rear.

The main entrance is through a central portion which contains the guard room and on the upper floors the Prison offices and quarters for the officers. Immediately to the right and communicating with the entrance hall by means of the Warden's private office and the Directors' room, is the part used by the Warden and his family as a private residence. The Warden's office is connected by telephone with every part of the establishment where an officer is stationed. The Deputy Warden and Chaplain live in a detached stone house to the right of the entrance. The part to the left of the entrance, which is now called the west wing, was built in 1827 and formed the whole of the original Prison. The east wing, in the rear of the Warden's residence, was added in 1835 and is now used as the women's department. In 1886 the main block of cells was built, running directly back from the guard room, and in arrangement and equipment has proved suitable for the needs of the institution.

CHAPEL AND LIBRARY.

The chapel and library are on the first floor at the left of the guard room and are under the charge of the Chaplain, who conducts the chapel services and superintends the distribution of library books. On Sunday mornings between ten and eleven o'clock, Sunday School classes, both Protestant and Roman Catholic, at which the attendance is optional, are held in the same room. The former are taught by teachers from the Hartford Young Men's Christian Association and the latter by young men sent down from the Roman Catholic churches of the city. From eleven to twelve o'clock a regular church service is held which is attended by the prisoners in a body. The women are placed in the gallery and are so screened as not to be seen by the men below. On the second Sunday in the month mass is said by a Roman Catholic priest at nine o'clock. On Monday evenings are held the meetings of the Christian Endeavor Society composed of about twenty prisoners who have records of the better class and are interested in religious matters. This also is conducted by the Chaplain.

Plans are under consideration for enlarging the chapel by adding to it the present school-room which would increase its seating capacity by about one hundred and fifty. A new school-room would then be fitted up beyond the chapel and the library book-cases would be transferred to this new room.

An annual appropriation of three hundred dollars has been made by the State for the benefit of the Prison library and has been expended in the purchase of books from time to time until it now contains about four thousand volumes of selected works. A copy of the catalogue is put in each cell and on Mondays and Fridays the men are allowed to make selections.

NIGHT SCHOOL AND ENTERTAINMENTS.

On Tuesday and Friday evenings instruction is given, under the direction of the Chaplain assisted by teachers from among the prisoners, to a class of men whose records are good and who wish to obtain the elements of knowledge. Only reading and writing are taught and when a man attains a fair degree of efficiency in these branches, he graduates. About one-third of the convicts, many of whom are foreigners, are unable to read or write. It has not been thought best to attempt any of the higher branches of education but a number of prisoners utilize a part of their spare time in the cells in the more advanced studies such as are usually taught in the common schools.

During the winter two entertainments a month, on an average, are given for the improvement and amusement of the convicts. They consist of musicales, readings, lectures, stereopticon exhibitions, etc., and are given voluntarily by clubs, societies and individuals.

HOSPITAL.

The Hospital is situated over the chapel and library and is reached by an iron stairway in the northwestern corner of the hall. It is a large airy room and is well lighted and ventilated by long windows on the south side and a cupola overhead. On one side is a row of beds for convalescent patients and on the other a series of six rooms for those who are seriously ill. At the west end of the hospital are the diet kitchen and the dispensary, the latter under the charge of a prisoner who was formerly a medical practitioner.

In view of the considerable proportion of hospital patients who are afflicted with pulmonary diseases, it is proposed to reserve a room for their use between the main hospital and the contagious ward where the more advanced cases of consumption may be isolated. Prisoners who are suffering from the disease in an incipient stage but who are still able to work in the shops, are now separated from the general body of inmates by being located in a special section of cells.

CHANGES IN WEST WING AND CLASSIFICATION OF PRISONERS.

Under an appropriation of $20,000 granted for the purpose by the General Assembly of 1895, extensive alterations have been carried out in the old west wing. The gloomy and unwholesome brick dungeons, formerly used for confinement and punishment, have been torn out and in their place has been erected a block of thirty-two steel cells of the most approved modern design. These are arranged in two tiers and are so constructed that two more tiers can be added whenever sufficient funds are provided.

In connection with these changes and made possible by them, has been introduced a system of classifying all the inmates of the Prison. Three grades have been established of which the second includes the general body of prisoners and is the one in which all newcomers are enrolled on arrival. From this, promotions to the first grade may be made by the Board of

Directors upon the written recommendation of the Warden in recognition of a prisoner's general cheerfulness and obedience to rules, steady effort in labor and exemption from punishment for a period of at least six months prior to the recommendation. A serious violation of the rules and a violation of the qualifications for promotion shall subject a prisoner to forfeiture of membership in the first grade. Reduction from this grade shall be made by the Warden and no prisoner so reduced shall be eligible for re-entrance within a year thereafter. Members of the second grade wear suits of a dull grey color.

Any prisoner who seriously or persistently violates the rules shall be reduced to the third grade by the Warden for a period of thirty days. At the expiration of that time, if the prisoner has been obedient, he shall be restored to the second grade but a continued violation of the rules shall subject him to detention in the third grade for another period of thirty days. Any further extension of time in this grade may be made at the discretion of the Board of Directors. Members of the third grade are clad in suits of bright red and are deprived of all privileges.

The members of the first grade wear a neat uniform of cadet blue, occupy the new cells in the west wing and enjoy a number of extra privileges in matters of food and tobacco, letter-writing and the reading of certain secular weekly newspapers. In addition to these, one hour a fortnight is granted for conversation, debate or literary exercises under the direction of the Chaplain. A club organization has been adopted, officered by the prisoners, and the exercises thus far have been in the nature of formal debates.

Each cell for members of the first grade is furnished with a small cupboard containing crockery dishes and neat table utensils. The meals are served from a dinner-wagon that is pushed from door to door and each man may specify the amount of food desired. The menu is changed weekly and offers a considerable variety of excellent articles.

At a recent visit twenty-nine prisoners were found enrolled in the first grade of whom nineteen were located in the new cells, the others being employed in the prisoners' and officers' kitchens and therefore occupying cells in the main block in order to be near their work. A new kitchen has been built at the extreme west end of the wing for the service of the new block and has been so constructed that it may be used also in connection with a ward for insane convicts which it is desired to build beyond.

INSANE WARD.

The need of such a ward has long been felt and the present system of transferring insane convicts to the Hospital at Middletown has many disadvantages which have been noted already in this and previous Reports.

Reliable authorities have declared that one of the effective causes of insanity in the Prison is the lack of a proper place for the immediate and temporary care of those who are suffering from derangement of the nervous system. Two new cells have recently been built in a room between the chapel and the first grade block for the restraint of violent cases but in neither arrangement nor surroundings can they furnish adequate or proper facilities for the scientific treatment of the insane.

WOMEN'S DEPARTMENT.

This department is situated in the east wing, under the charge of a matron, and consists of a large room with two tiers of five cells each, ranged on the north side. The cells are larger than those used for the male convicts and are more comfortably furnished. The women inmates number six at present and are all regularly employed. They have the use of sewing machines and make and mend all the sheets, pillow cases and shirts used in the Prison, and mend all of the underwear. They also do the laundry work for the officers of the institution in an adjoining room. A small court, enclosed by a high stone wall, serves as a drying yard and also as an exercise ground for the women in fair weather.

MAIN CELL BLOCK.

This is built of brick and contains three hundred and ninety cells arranged in five tiers one above another. The block is completely surrounded by a wide hall-way and is divided longitudinally by a passway on each tier which contains the water and ventilating pipes and permits each cell to be inspected from the rear by the guard officer. Access to the tiers is gained by iron stairways and galleries surrounding the block. The halls and cells are well lighted and ventilated by long windows in the outer walls and by a system of pipes which extend from the cells to a space above the block, which in turn connects with the outer air by ventilators in the roof.

On each prison wall, facing the east and west sides of the block, are fastened at proper distances three perpendicular iron ladders with two conning platforms to each. At the time of turning in or out of the prisoners, officers mount all of the six ladders, and by occupying either the higher or lower platforms corresponding to the upper or lower tiers, are able to watch the deportment of the men entering and leaving their cells. The contemplated changes in the arrangement of the chapel will also enlarge the guard room by several feet and will thus enable the officers stationed there to survey both sides of the main block without leaving their post.

All the cells are identical in size and measure on the inside, 7 feet 4½ inches in height, 8 feet in length and 4 feet 11½ inches in width. Each is furnished with a strip of carpeting, a single bed covered with a tick filled with straw, sheets and blankets, pillow and pillow case, a chair and small looking glass and comb. A small shelf in each cell, to be attached to the door for use at meal-times, is a convenient addition to the furnishings made within the past year. At the back of the cell are a water closet and wash stand supplied with running water and soap and towel. The inside walls are whitewashed and a detachment of men is kept constantly employed at this so that each cell receives a fresh coating about once in two weeks.

Each prisoner is held responsible for the condition of his cell; he is supplied with a broom, cloth and soap and is expected to keep his quarters so neat and clean that they will pass the daily inspection of the officers and also the inspection of the prison physician who visits each cell twice a week. Every man is required to bathe weekly and is furnished with a clean set of underclothing, each piece of which is numbered, so that so long as he remains within the prison he will wear only the underclothes which have been numbered as his own.

New shower baths, sixteen in number, of modern sanitary design have been fitted up in the room formerly occupied by the bake-shop. Each is enclosed in a separate compartment which gives a considerable degree of privacy while at the same time their number permits the rapid bathing of the prisoners in detachments of sixteen.

NEW KITCHEN, BAKERY AND STOREHOUSE.

The appropriation of the old kitchen for other uses has compelled the erection of a new building for the cooking and baking departments. This has been built at the northeast corner of the main block and is a substantial one-story structure of brick. It furnishes larger and more convenient accommodations for these departments and is connected with the hall surrounding the main block by a window through which the rations are served to the men as they pass to their cells.

The food is plain but wholesome and is varied to a considerable extent. The usual bill of fare is, for breakfast, oatmeal, rice, or hash and bread and coffee; for dinner, corned beef with vegetables, beef stew, fish, or soup with bread; and for supper, Indian meal pudding or bread and molasses, with tea. Milk and sugar are furnished for tea and coffee and occasionally apple-sauce in its season.

A new storehouse, also, has been constructed to the northwest of the main block upon the site of the former building which was condemned as inadequate and generally unfit for the purpose. It is a commodious two-story brick structure of heavy mill-construction and furnishes room for the systematic arrangement of large quantities of supplies. An office has been fitted up on the first floor for the use of the Superintendent of the storehouse and a system of drawing requisitions thereon for all supplies needed in the various departments has been introduced.

PUNISHMENT BAY AND SOLITARY CONFINEMENT CELLS.

Upon the completion of the new kitchen, the room formerly used for that purpose was remodeled and fitted with cells for the confinement of refractory prisoners who require a mild form of punishment. Six cells have been constructed for the purpose, all of which are moderately light, well ventilated and entirely above ground.

The new cells for solitary confinement, six in number, are located in the cellar under this room and are a great improvement upon the old dungeons in the west wing. They are built of brick, each independent of the others, and have double steel doors in front with apertures and gratings through which food may be passed to the more violent persons confined. Fresh air is supplied from a window at the end of the corridor and, after passing over hot steam pipes, reaches the cells through these apertures. The foul air is drawn out by an electric fan through flues which open in each cell under the steel box which serves as seat and bed. The cells are thus perfectly dry and well ventilated but are sufficiently dark and lonely to make confinement in them undesirable. Prisoners confined here are given bread and water twice a day and are visited daily by the Prison physician.

WORKSHOPS.

In the Prison yard, west of the main block, are two commodious brick buildings of three stories each, in which the rooms are fitted up as workshops and are numbered from one to six, consecutively. Five of the rooms are occupied with the industry of shoemaking which is carried on under contracts with two firms made for a period of five years. Together they employ the services of two hundred and thirty-five men at the rate of fifty cents per day in each case. The amount thus earned during the year ending September 30, 1895, was $36,520.28, and during that ending Sept. 30, 1896, $33,962.81.

About the first of September, 1895, a new industry, that of shirt making, was begun in shop No. 4. This is also under a five year contract which calls for the services of from sixty to one hundred men. At a recent visit, there were sixty-eight employed. The price paid for this work is on the piece-work plan, the State receiving fifty cents per dozen shirts and it being expected that each man will turn out about that number a day. The contracting firm furnishes the superintendent, the prisoners have learned to do the work quite readily and the industry appears to be a satisfactory one. The amount received on the contract during the year ending September 30, 1896, was $6,194.34.

The working hours for all the shops are, in summer, from 7 a. m. until noon, and from 1 till 6 p. m. In winter the hours are necessarily shorter as the shops are purposely not supplied with artificial lights so that the prisoners are kept at work only so long as daylight lasts.

REPAIR SHOP AND LAUNDRY.

The State shop, so called, is a detached two-story brick building situated in the yard east of the main block and is used as a repair shop and laundry. Here is also the tailoring department where two men are employed in cutting and making all the prison uniforms. All such work as the rebinding of library books, repairing and making tin mess pans and cups, shoe and harness mending, painting and varnishing, blacksmithing, tire setting, or any incidental repair work is carried on in this building.

The laundry has an average weekly washing of about three thousand pieces and is well equipped with steam wringer, drying-frame, etc. One of the improvements added since the last Report, is a large steam sterilizer through,which all the bedding and clothing are passed, thus destroying any disease germs. In pleasant weather the washing is carried by an elevator to the roof and is there dried in the open air.

The upper floor of this building is used as a cutting-room for the shirt industry where all the material is cut and made ready for the shops by an expert workman. Here also the finished product is boxed and prepared for shipment.

OUT-DOOR WORK.

A part of the land attached to the Prison and an adjoining tract leased from outside parties are cultivated by the prisoners who raise considerable quantities of vegetables and general farm produce. As only those are employed whose behavior has been exceptionally good, the opportunity to engage in this work acts as an incentive to right conduct. All prisoners who are employed outside the walls are clad in conspicuous suits of black and white stripes.

PHYSICAL EXERCISE AND MEASUREMENTS.

Soon after the present management took charge of the Prison, the practice was introduced of giving each prisoner one hour's exercise in the open air per week when the weather is pleasant. The men are taken to the east yard, one shop squad at a time, and are put through the setting-up exercises of the United States Army and the covering at a quickstep of a distance from two to three miles. The improvement in appetites, sleeping and general health resulting from this was quickly noticeable. All convicts on entering the Prison receive a thorough physical and mental examination, the results of which, together with all points pertaining to their general condition, are made a matter of record.

In this connection, mention should be made of the Bertillon system of measuring and identifying criminals which has been recently adopted at the Prison. Under this system a variety of physical measurements is taken of every convict on arrival which are of such a nature as to insure his future identification. These are entered, together with photographs of the subject considered, upon cards which are then filed for reference. When the central bureau of the system is established, as expected, at Washington, D. C., its usefulness as a means of correspondence between penal institutions will be greatly increased.

EXECUTION HOUSE AND AUTOMATIC GALLOWS.

The present Execution House is a one-story brick structure situated in the east yard and was built especially for the purpose. It consists of two rooms in the smaller of which is a steel cage, comfortably furnished, where the condemned man spends his last hours. The larger room contains the machine by which the hanging is performed. At the time of execution the condemned man is placed with both feet on an iron trap on the same level with the floor where his weight operates on levers and sets the machinery in motion. When the rope is adjusted and all preparations completed, the Warden presses a spring with his foot, an iron weight at the other end of the rope equal to twice or more the weight of the man, is released and the victim is jerked into the air. This apparatus has been used for one execution in December, 1894, and was considered by the authorities to be in all respects satisfactory. It is expected that it will be used again in December, 1896.

NUMBER OF INMATES AND COST OF SUPPORT.

Since the completion of the improvements in the west wing, the Prison contains a total of four hundred and thirty-two cells, besides the twelve in the new punishment bay and the solitary confinement block. For the years ending September 30, 1895, and 1896 the returns of the number in confinement were as follows:

	1895.	1896.
Highest number	420,	410
Lowest number	369,	373
Average number	403,	405

This shows a marked increase over the numbers for previous years but is a step in the right direction in so far as it relieves the already overcrowded County Jails of men who have been serving long sentences there for such crimes as can be more adequately punished by the better organized system of restraint and labor at the Prison.

The amounts paid by the State for the maintenance of the Prison have been:

For the year ending September 30, 1895	$41,254.38
For the year ending September 30, 1896	$40,511.90

In addition to these amounts, the figures given in the table of Expense to the State include also the expenditures of the Board of Pardons and of the Connecticut Prison Association.

REGULATIONS AND DAILY REPORTS.

On entering the institution each inmate is provided with a set of the prison rules and regulations. Men who are reported for petty violation of rules, are warned in the first instance but on successive repetitions are, according to circumstances, placed in solitary confinement, kept upon short rations, or, what they feel most keenly of all, are docked a portion of their good time allowance which would otherwise accumulate at the rate of five days per month for good behavior and would be deducted from the period for which they were sentenced. No officer is allowed to strike a prisoner except in self-defense.

An elaborate system of daily reports is kept which gives to the Warden a complete record of the condition and occupation of all the prisoners. These include the Deputy Warden's report showing the daily assignment of the prisoners to the shops, laundry, halls, hospital and other departments; the overseers' reports of the number of men at work in the various shops; the physician's report showing the condition of the men under treatment in the hospital or in cells; a report in detail of every case of punishment; reports of guard-room officers; and a report of the number of visitors admitted.

MANAGEMENT.

In the daily life of the Prison there are opportunities for the exercise of favoritism toward some of the inmates and of petty spite toward others, and there is a human liability also that the forwarding to the Board of Charities of communications which are believed to contain complaints may make the complainant a marked man and prejudice the conduct of the administration toward him.

The control of four hundred criminals, among whom are men of depraved natures and unruly dispositions, is a matter of no little difficulty, and it is not always easy, for the remuneration allowed, to secure guards and officers of the greatest ability. Nevertheless, in order to conduct the institution successfully in the best all-round sense, it is most important that the management should be in the hands of men who are of the best moral character and fitness. The Warden and officers are in duty bound to use humane and enlightened methods of treatment and to cultivate a spirit of manliness in the inmates by appealing to the latent good in their natures and by setting before them the highest standards of character and life.

VISITORS.

Under the present regulations visitors from the general public are admitted to the Prison on Wednesdays at the discretion of the Warden, but on other days only on a written permit from the Warden or one of the Directors. Each prisoner in the first and second grades is allowed to receive one visit a month on Fridays from relatives or friends in the presence and hearing of an officer.

THE CONNECTICUT PRISON ASSOCIATION, HARTFORD.

MR. JOHN C. TAYLOR, *Secretary and Agent.*

Since the date of its incorporation in 1879, this Association has carried on a systematic and continuous work in assisting prisoners at the time of their discharge to reach their families or friends and to secure honest employment. The Society is supported by private contributions and donations and receives also an annual appropriation from the State of three thousand dollars, almost all of which is spent in actual assistance to the prisoners.

A committee from the Society visits the Prison every month and there interviews each prisoner who is to be discharged during the month succeeding, giving him an opportunity to discuss his plans for the future and to avail himself of the Association's help. At the time of his release, he is met by the agent who accompanies him to the Society's office in the Capitol and assists him in determining upon the first steps of his new life.

As stated by the agent in his last report, "the members of the Association will stand by each man with material assistance until he can have honest, self-supporting employment, and it then invites him to come to them at any time thereafter for advice, and in the event of his getting out of employment to come back and let them assist him again to get other work. Also as an incentive to good behavior, it is agreed with each man that if he lives an upright, industrious life, steps will be taken to secure a passage of a resolution by the Legislature, restoring to him his forfeited rights as a citizen, (after having given evidence of his reform by continuing in the right path for a year or more)."

As to the percentage of discharged prisoners who are permanently reformed, it is stated in a former report that "the records of the Prison will show that less than 8 per cent. of all the prisoners discharged during the past twelve years have been recommitted to that institution.''

A brief statistical statement of the Society's work for the last two years is as follows:

	Year Ending Sept. 30, '95.	Year Ending Sept. 30, '96.
Prisoners discharged by expiration of sentence	133	166
Prisoners discharged by Board of Pardons	6	2
Total	139	168
Assisted by the Association	131	165
Assisted those discharged previously	14	36
Assisted prisoners discharged from jail	?	7
Total	145	208

REFORMATORIES.

THE CONNECTICUT INDUSTRIAL SCHOOL FOR GIRLS, MIDDLETOWN.

Under the control of a self-perpetuating Board of twelve Directors and the Governor, Lieut.-Governor, and Secretary of State as State Directors, *ex-officio.*

MR. W. G. FAIRBANK, - - - - - *Superintendent.*
MRS. W. G. FAIRBANK, *Visiting Agent and Assistant Superintendent.*
Visited monthly by two members of the Board until August, 1895, and quarterly thereafter.

This School is not a State institution but a private charity which was established by individual contributions. It was incorporated in 1868 and has granted to the State the use of its facilities for the guardianship and instruction of girls between the ages of eight and sixteen years who are leading idle, vagrant or vicious lives, or are in manifest danger of falling into evil habits. All such may be committed by Judges of Probate, of City Courts, or Justices of the Peace, upon satisfactory written complaint, to the guardianship of the School during their minority, unless sooner lawfully discharged ; when so committed they become wards of the State for whose support the State pays a fixed sum. Its purpose is not one of punishment but of prevention and reformation by giving to its inmates that special physical, mental, moral, and industrial training necessary to fit them for useful lives, which they were not likely to receive in the surroundings from which they were taken.

The School is finely situated about two miles from the center of the city upon high ground commanding extensive views of the surrounding country. The buildings comprise seven Family Homes, a chapel and school building, Superintendent's house, dress-making shop, farm-house and barns. Fessenden Hall contains on the first floor a large cooking school, a dining room for Directors' meetings, etc., and a new primary school room for the youngest girls. On the floor above are a pleasant assembly room for meetings, entertainments, etc., and a new library room. In the basement is a large room which will soon be fitted up as a gymnasium.

These seven Homes provide facilities for a careful classification of the inmates. The Browning Home is reserved for the youngest girls and the Russell, No. One and Two, for those of vicious and unruly natures. These latter attend school in their own building and in their schedule of work, study and recreation, live as a separate family. The other Homes are graded according to the age and character of their inmates. The girls from the different Homes are never brought together except in the school rooms and in the religious and other meetings and then always under the watchful eyes of teachers so that the danger of corruption from evil associates is not great.

The daily routine consists of four hours of work in the various departments, four hours in school, and the remainder of the time for meals, reading and recreation. The discipline of the establishment is kind but firm. Reproof is the most common form but for wilful disobedience and other offenses the punishment is confinement, only by order of the Superintendent, in a room for reflection, for a period not exceeding three days. Corporal punishment has not been employed during the last five years.

The schools in the institution are arranged in nine grades which are intended to conform as closely as possible to the standards of public grammar schools. Besides these are the two ungraded schools in the Russell Home. On two evenings a week singing classes are held in Fessenden Hall where oral instruction in music is given to the whole school. Instruction in moral and religious principles, also, is made an influential part of the School life.

Marks are awarded according to a standard of good behavior and good work. These are made up once a month and determine the grades to which the girls belong. By uniformly good conduct a girl may reach the honor grade and be eligible for dismissal or placing out in a family within ten months from the date of commitment.

When placed in outside families the girls are accompanied to their new homes and are visited twice a year or oftener and kept under observation until they reach the age of twenty-one. With few exceptions, homes are chosen within the limits of the State and every effort is made in their selection that the families and the girls may be mutually satisfactory.

The statistics of the School for the year ending September 30, 1895, are as follows:—

Number in School October 1, 1894	236	
Received during the year [new cases and old]	116	
		352
Dismissed by expiration of minority	3	
Dismissed in other ways	11	
Placed out in families [new cases and old]	62	
Placed out with relatives	32	
Remaining in School October 1, 1895	244	
		352

For the year ending September 30, 1896, as follows:

In School October 1, 1895	244	
Received during the year [new cases]	54	
Returned on old commitments	63	
		361
Placed in families during year [new cases]	49	
Replaced in families	11	
Placed with relatives	38	
Dismissed by expiration of minority	6	
Dismissed in other ways	16	
Remaining in School, October 1, 1896	241	
		361

CAUSES OF COMMITMENT.

Manifest danger of falling into vice	24
Truancy or Vagrancy	12
Incorrigibility and Disobedience	10
Theft	4
Offenses against chastity	4
	54

Whole number received since opening of School	1,257
Whole number placed out [including those returned and replaced]	2,097

The State allowance per capita is $3 per week.

The cost to the State has been:—

For the year ending September 30, 1895	$41,329 25
For the year ending September 30, 1896	$40,784 82

THE CONNECTICUT SCHOOL FOR BOYS, MERIDEN.

Under the management of a Board of twelve Trustees appointed by the Senate, one from each County, and four from the vicinity of the Institution.

REV. GEORGE L. COBURN, *Superintendent.*

Visited monthly by two members of the Board until August, 1895, and quarterly thereafter.

The Connecticut School for Boys, as the State Reform School has been known since its change of title by the Legislature of 1893, is pleasantly situated on a high elevation of land within half a mile of the center of Meriden. The buildings are built of brick and consist of a large main building, five detached cottages, a chapel, shop for industrial classes, barns and out-buildings,

The main building contains the congregate department, so-called, which is arranged in two divisions and usually comprises about two hundred boys although the building has total accommodations for more than three hundred and fifty. Each division has its separate school-room, play-room, dormitory and dining-room, all of which are neatly furnished. The fourth story of the central portion has been fitted up for hospital purposes but in many respects is ill-adapted to such use and by reason of its height from the ground suggests dangerous possibilities in case of fire. A separate cottage hospital with provision for isolating cases of contagious diseases is greatly needed.

A wing in the rear of the main building contains the kitchen, bakery and laundry each of which employs a squad of half a dozen boys. On the upper floors are the tailor-shop, shoe-shop, printing-office, class-room for telegraphy and a large shop for cane-seating chairs, which is used by the two divisions in turn. About twenty-five boys are employed in the tailor shop where the trousers, vests and shirts used in the School are manufactured, and about ten others in the printing-office where they conduct a general printing business and publish the monthly paper of the School. On both sides of this wing are yards for exercise and recreation which are inclosed with high board fences and for reasons of cleanliness and safety are paved throughout with asphalt.

Each of the five detached cottages has accommodations for fifty boys and contains a dormitory, dining-room, school-room, play-room, and work-shop for cane-seating chairs. Each cottage is under the supervision of a man and his wife and an effort is made to conduct them on the family plan, kindly discipline and restraint taking the place of bolts and bars and high fences. The more tractable boys are lodged in the cottages, being assigned among the several households as their natures and dispositions prove most suitable, while the unruly and vicious characters are confined in the main building. A pleasant play-ground is set apart for each cottage and the boys from the different houses occasionally come together for ball-games or other athletic contests.

The usual daily routine consists of six hours for work in the various departments, three hours in the school-rooms, and ten hours allotted for sleep, while the remainder of the time is devoted to meals, incidental duties and recreation. The eight schools in the institution are carefully graded and provide instruction in all the ordinary branches of a common-school education. Devotional exercises are held morning and evening during the week and on Sundays preaching and Sunday School services are conducted in the chapel. Roman Catholic priests are in attendance for mass once in two weeks. Entertainments of various sorts are given at intervals through the winter months.

Accommodations for the classes in working trades are provided in a shop at the rear of the main building and beyond stretches the School farm of one-hundred and ninety-five acres, a part of which is cultivated by the boys.

Boys between the ages of seven and sixteen years may be committed to the guardianship of the School during their minority by any court of record in the State. Through uniform good conduct, a boy may earn successive promotions and reach the honor grade in a year from the time of entrance, when he is eligible for dismissal on probation. The average time of residence is twenty-two months.

For petty offenses the punishment is transfer to a lower grade which involves a lengthened stay in the School. Other means of discipline are deprivation of privileges and confinement in separate rooms for reflection. For serious or repeated offenses, corporal punishment may be inflicted but only in the presence of the Superintendent.

In connection with the maintenance of effective discipline, stress is laid upon the necessity for unceasing care upon the part of the management to prevent the escape of boys from the School, and in the event of such escapes, to employ every means possible for the prompt recovery of the runaways.

The general statistics of the School are as follows:

	For the year Ending Sept. 30, '95.	For the year Ending Sept. 30, '96.
Number in School October 1, 1894 and 1895	481	442
Received during the year	149	187
Received on old commitments	49	51
Returned themselves	17	17
Boarders	4	3
	700	700
Returned to parents or friends	225	200
Placed with farmers	15	22
Placed at trades	10	3
Discharged in other ways	8	3
Died	0	3
Remaining in the School October 1, 1895 and 1896	442	469
	700	700

FOR WHAT OFFENSE COMMITTED.

Incorrigibility	66	93
Theft	42	38
Truancy	15	11
Vagrancy	12	11
Burglary	2	14
Other offenses	12	20
	149	187

Whole number of boys since opening 5,814

The State allowance per capita is $3 per week.

The cost to the State has been:—

For the year ending September 30, 1895	$71,642 02
For the year ending September 30, 1896	70,461 95

PROVISION FOR THE INSANE,

CONNECTICUT HOSPITAL FOR THE INSANE.
MIDDLETOWN.

Under the management of a Board consisting of the Governor and twelve Trustees appointed by the Senate; one from each County and four from the vicinity of the Institution.

JAMES OLMSTEAD, M. D., *Superintendent and Physician.*

Visited monthly by two members of the Board until August, 1895, *and quarterly thereafter.*

The State Hospital for the Insane was organized by an act of the Legislature in 1866 and the main building was opened for the reception of patients on April 30, 1868. This was soon filled and since that time applications for admission have steadily increased. To meet this demand additional buildings were erected from time to time, until now the institution comprises four main hospitals, an annex and five cottages, besides several farm and other out-buildings. These furnish a nominal capacity for about seventeen hundred patients which is somewhat increased by skillful arrangement. Although its advisability has been variously discussed, it has been the policy of the State to increase the capacity of the institution at Middletown as occasion has demanded, rather than to establish additional hospitals in other parts of the State. The location has many natural advantages in the way of an abundant water supply and a simple method of sewage disposal by surface irrigation over the farm. More than four hundred and fifty acres of land are included in the Hospital property and the buildings are finely situated on a high ridge which commands extensive views of the surrounding country.

The last building added is the North Hospital which was opened for occupancy in April, 1895. This is a substantial three-story structure of brick, relieved by terra-cotta ornaments, and is built after the method known as mill or slow-burning construction. It is arranged in wards with large sunny bays in the corridors for use as sitting-rooms and has a capacity of two hundred and fifty patients. The total cost was about $100,000 of which $30,000 was provided by a grant from the State and the balance was appropriated from the reserve funds in the hands of the Trustees.

The chronic condition of overcrowding at the Hospital was temporarily relieved by the opening of the new building but the increased accommodations have been fully occupied and the demand for admission still continues. Already an addition to this building is in process of construction in the form of a neat cottage which will furnish additional accommodations for fifty patients and will be connected with the larger structure by a covered passage.

Each of the four main hospitals is under the charge of a resident physician, assisted by a staff of supervisors who have the immediate direction of the ward attendants and instruct them in their duties. For the last five years the Hospital has had the advantage of the services of a resident female physician, who has successfully conducted the physical examination of many of the female patients and has also assisted in their treatment.

All the patients are classified according to their bodily and mental condition. Those who are quiet and easily controlled are associated together in common wards or dormitories, while those afflicted with acute mania are confined in separate rooms. The latter are watched at night by attendants who patrol the corridors once an hour, while in the wards night attendants are always on duty. Patients who are suspected of suicidal tendencies, and epileptic patients are under the constant supervision of a staff of nurses.

By far the largest proportion of the inmates of the Hospital is of the pauper and indigent classes, both of which are now paid for by the towns or persons committing them at the same rate of two dollars per week, the balance of the cost of support being paid by the State. Only when there are vacancies not desired by applicants of these classes are private patients admitted.

Many of the able bodied inmates are regularly employed on the farm, about the premises and in various departments of housework, while evening entertainments in the winter months, out-door exercises and various amusements are regular features of the Hospital life.

The statistics of the Hospital for the year ending June 30, 1895, are as follows:

	Males.	Females.	Total.
Number of inmates June 30, 1894	753	827	1,580
Number admitted during the year.	208	172	380
Number discharged during the year	167	131	298
Number remaining June 30, 1895	794	868	1,662

Number remaining September 30, 1895, were supported as follows:

By self or friends [paying]	27
By State and friends [indigent]	591
By State and towns [pauper]	935
By State alone	130
	1,683

Number of Insane Convicts, September 30, 1895.

From State Prison.	33
From County Jails	3

The statistics for the fifteen months ending September 30, 1896, are as follows:

	Males.	Females.	Total.
Number of inmates June 30, 1895	794	868	1,662
Number admitted in fifteen months	281	251	532
Number discharged in fifteen months . . .	229	183	412
Number remaining September 30, 1896 . .	846	936	1,782

Number remaining September 30, 1896, were supported as follows:

By self or friends [paying]	28
By State and friends [indigent]	562
By State and towns [pauper]	1,054
By State alone	110
Insane Soldiers	28
	1,782

Number of Insane Convicts September 30, 1896.

From State Prison.	43
From County Jails.	5
	48

For the maintenance of the institution the State paid:

For the year ending September 30, 1895	$70,916.49
For the year ending September 30, 1896	60,380.52

INSANE STATE BENEFICIARIES

UNDER TREATMENT IN OTHER HOSPITALS.

HOSPITAL.	YEAR ENDING SEPT. 30, '95.	YEAR ENDING SEPT, 30, '96.
Butler Hospital, Providence, R. I.	1	1
New Hampshire Asylum, Concord, N. H . .	6	0
Hartford Retreat for the Insane	38	40

There are at present no State patients in Hospitals outside of Connecticut, the few who were formerly cared for in the New Hampshire Asylum and the Butler Hospital at Providence, R. I., having been withdrawn in 1895 and February, 1896, respectively. The withdrawal of patients from Hospitals outside of the State has been made possible by the increased accommodations provided at the Connecticut Hospital at Middletown, while the reduced cost of support there is doubtless an influential factor in accomplishing this result.

For the support of patients in the New Hampshire and Rhode Island Asylums, the State paid:

For the year ending September 30, 1895	$775.18
For the year ending September 30, 1896	$208.31

THE RETREAT FOR THE INSANE, HARTFORD.

HENRY P. STEARNS, M. D . . . . *Physician and Superintendent.*
EDWIN A. DOWN, M. D. . . . . *Assistant Physician.*
Visited in April, 1896.

The Hartford Retreat is the third in point of age among institutions in this country designed for the exclusive care of the insane, having received its charter from the State in 1821. It was originally planned and organized by members of the Connecticut Medical Society and was formally opened for the reception of patients on April 1, 1824.

The institution is pleasantly located in an enclosure of some thirty acres bounded by Washington Street, Retreat Avenue and Maple Avenue and has its principal entrance on Washington Street. The distance from the City Hall is about a mile and a half and may be covered by electric cars on the Vernon Street or Cedar Hill lines in a few moments. The grounds are tastefully laid out with broad stretches of lawn, shade trees, walks and driveways. For the Retreat's purposes an edifice was first erected, which consisted of a main part and two wings, with quarters for fifty patients. It is still in use and forms the central building of the present group.

Additions in the form of wings, so constructed as to preserve the whole in symmetrical proportion, have been built on as occasion required, and in later years three cottages have been erected at a short distance from the main building as a means for providing a greater degree of individual care and home-like comfort for patients. The cottages are handsomely furnished and are supplied throughout with the comfortable appliances and conveniences of private homes. Meals for the cottage patients are conveyed by an underground tramway which connects with the kitchen of the main building.

The interior arrangements and furnishings of the central building have been changed and renewed at different times to meet current necessities and to keep all departments in line with the system of modern principles and style of appointments which have been carried out in the construction of the wings and cottages. The whole establishment has comfortable accommodations for one hundred and fifty-five patients.

An important improvement was made during the last year in the completion of eighteen new bath-rooms equipped with all of the most approved appliances. These are arranged in six additions to the main group of buildings, wholly distinct as regards ventilation and drainage, but conveniently connected with the halls on the several floors. It is believed that perfect sanitary conditions have been secured and that little change in this department will be required for many years.

Through the generosity of the President of the Board of Directors a commodious chapel was built in 1875 on the west side of the grounds, and appropriately furnished. Religious services are regularly conducted by the Retreat chaplain on Sundays and week days.

During the winter season a course of evening entertainments is given in the music hall in the main building. The course consists of concerts, dances, drills, readings, musical and dramatic entertainments, etc., and local clubs and societies and private individuals generously assist in their production. Much attention is devoted to out-of-door exercise and amusements when the weather permits and numerous excursions for the quieter class of patients are made to towns and localities in the vicinity.

Two valuable farms which are connected with the institution furnish the necessary supplies of fruits, vegetables, milk, etc. A training school for the instruction of nurses in the care of the insane was established in 1893 and continues in successful operation. Twenty pupils have been present during the year and the attendance upon the lectures and demonstrations given has been limited only by the immediate requirements of the wards.

The institution is under the charge of a Board of Directors and a Board of Managers. Regular inspections are held by a board of six medical visitors, who make monthly calls and submit an annual report to the Board of Directors.

On September 30, 1896, there were in the Retreat one hundred and forty-nine patients, one hundred and eleven of whom were residents of Connecticut. Twenty-nine of the whole number were State patients and five were being supported without charge.

The amount paid for the support of State beneficiaries was:

For the year ending September 30, 1895	$2,408.02
For the year ending September 30, 1896	$2,377.98

All departments show the same uniform condition of good order and successful administration which have been characteristic features of the Retreat's record for more than seventy years.

The statistics of the Retreat, as shown in its annual Reports for the last two years, are as follows:

	YEAR ENDING MARCH 31, '95.	YEAR ENDING MARCH 31, '96.
Number of patients March 31, 1894 and 1895,	143	150
Number admitted during the year	110	87
	253	237
Number discharged during the year	86	75
Number died during the year	17	19
Number remaining March 31, 1895 and 1896	150	143
	253	237

PRIVATE ASYLUMS FOR INSANE.

There are at present eight Private Asylums in operation in the State, an increase of two since the last Report. Five of them have been established within the last six years. They shelter an average number of one hundred and ninety inmates at weekly rates of from $7.00 to $75.00.

The rapid increase of Asylums of this nature shows not so much a corresponding increase of insanity in the population of this State, as it does the ease with which persons may here open such institutions for the reception of the insane from other States. The only restraints upon these Asylums at present in Connecticut are provided for in Chapter 256 of the Public Acts of 1895, Sections 22 and 23, in accordance with which all of the Asylums have been visited by representatives of the State Board of Charities, and the resident physicians in charge have made written returns quarterly to the Board, giving the name, age, and sex of each patient confined, the time when committed and by whom, and such other information and in such form of return as the Board has prescribed.

An account of the institutions in the order of their establishment is given in the list which follows.

SPRING HILL HOME FOR NERVOUS INVALIDS, LITCHFIELD.

UNDER THE CHARGE OF DR. J. L. BUELL.

Visited in September, 1895, *and April*, 1896.

This asylum was established in 1847 and is the oldest private institution for nervous and mental diseases in the State. Its buildings are attractively situated on high ground at the head of North Street, about half a mile from the center of the town, and command pleasant views of the surrrounding country.

A new cottage has been opened since the last Report for the use of female patients, making a total of five houses for the asylum besides the residence of the doctor in charge. Of these three are designed for women, furnishing accommodations for thirteen patients, and two, one of which is small and is called "the chalet," are reserved for men and accommodate nine patients. All the inmates are under the charge of individual attendants and have opportunities for driving and for exercise and recreation on the grounds surrounding the houses. Most of them have their meals in common in the south cottage while others are served in their rooms. The buildings are heated by steam and hot air and the rooms, many of which are in suites, are pleasant and comfortably furnished. A well-kept farm of two hundred acres adjoins the Home.

Voluntary applicants are received but all other cases are required to observe the legal formalities of commitment. At the time of visit there were fifteen inmates, six men and nine women. A fair number of recoveries is reported each year.

CROMWELL HALL, CROMWELL.

UNDER THE CHARGE OF DR. W. B. HALLOCK; DR. FRANK K. HALLOCK ASSISTANT.

Visited in December, 1895.

Cromwell Hall is the second oldest sanitarium in the State for the care of nervous diseases, having been opened in December, 1877. It is finely located about one mile north from the railway station on a hillside obtaining a southern exposure and commanding extensive views of the Connecticut River and valley.

The main building is a large octagonal house of stone, three stories in height, of which the first is designed for the general use of the patients while the upper floors are reserved exclusively for female patients. There are also two cottages near by, the East Cottage which is used for men and contains a pleasant gymnasium and recreation room, and the West Cottage which is reserved for a single patient desiring separate accommodations or for cases requiring special individualized treatment. There are total accommodations for twenty patients and all of the buildings are heated by steam and attractively furnished. Shaded lawns furnish an opportunity for exercise and recreation in the summer months while the glass-inclosed piazzas and sun-parlor fulfill the same purpose in inclement weather.

In view of the steadily increasing proportion of simply nervous cases among the inmates, it has been decided within the past year to limit the admission exclusively to that class of patients and to refuse all mental cases hereafter except those of a very mild character. The distinctive feature of the treatment is what is known as the " Program Method," under which a varied schedule of treatment and hygienic living is carefully arranged for each patient. The number of attendants is liberal and the patients are surrounded with all needful comforts and conveniences.

A farm belonging to the Hall property and situated about two miles from the main building in a westerly direction, has been fitted up as an outing ground for patients during the summer months and may be used, also, as a residence for the family of an inmate undergoing treatment at the Hall.

The whole institution is under the personal supervision of the Drs. Hallock and is maintained at a uniformly high standard.

KENSETT, NORWALK.

UNDER THE CHARGE OF DR. EVERETT SMITH,

Formerly connected with the Hospital for Insane at Morris Plains, N. Y.

Visited in October, 1895 *and April* 1896.

The institution was opened in June, 1886, for the care and treatment of persons suffering from insanity and nervous diseases and for alcoholic and narcotic habitués.

The house occupied was formerly a private residence and is finely situated on high ground four miles north of Norwalk and near the South Wilton station on the Danbury division of the N. Y., N. H. & H. R. R. The quiet surroundings and pleasant scenery are all conducive to the welfare of the patients. A farm of five hundred acres, a part of which is under cultivation, is connected with the sanitarium.

The main house is heated by hot water, lighted by gasoline and contains quarters for thirteen patients. Additional accommodations for several patients are provided in five small cottages near by. The rooms are well furnished and supplied with modern conveniences and it is the aim of the place to surround the inmates with all material comforts. Every patient has one or more attendants.

The majority of the inmates are from New York and at the date of visit there were ten under treatment. All patients, other than voluntary cases, are committed according to the forms prescribed by the laws of the State in which they reside.

THE WESTPORT SANITARIUM, WESTPORT.

DR. F. D. RULAND, *Superintendent*,

Lately connected with the Brunswick Home at Amityville, L. I.

Visited in September, 1895, and April, 1896.

The Sanitarium was opened in January, 1891, for the treatment of insane patients and sufferers from nervous diseases. It differs from other private asylums in the fact that the whole establishment is owned by a joint stock company, incorporated under the laws of the State of Connecticut, and is controlled by a Board of Directors to whom the resident Superintendent is directly responsible.

A spacious private residence near the center of the town and surrounded by extensive grounds was purchased for the purpose. This house is now used for special patients who have personal attendants rooming with them and contains also quarters for the assistant superintendent. Near by was erected the

Sanitarium proper, a large three storied wooden building especially designed for the purpose. It consists of a central part containing reception rooms, offices, etc., and two wings, one for female and the other for male patients. The patients are classified in wards according to the severity of their cases, each ward consisting of a pleasant hall or sitting-room with comfortable bed-rooms opening from it. There are separate dining-rooms for the several wards, all communicating by dumb-waiters with a common kitchen. The whole building is heated by steam and lighted by gasoline and is supplied with hot and cold water in the bath-rooms. Provision is also made for fire-escapes and lines of fire hose. The furnishings of the building are all new and attractive.

The grounds about the institution comprise about fifty acres, laid out in an ornamental manner, and give the patients daily opportunities for exercise and recreation when the weather permits. Indoor games are provided and occasional entertainments are given. Religious services are also held.

The Sanitarium and house together furnish accommodations for seventy patients; at the time of visit, there were forty-six under treatment, eighteen men and twenty-eight women for whom a liberal number of attendants was provided. A majority of the patients are from New York and in most cases are received by commitment according to the usual process. Voluntary cases are also received on condition that each one signs an agreement to remain and follow a prescribed course of treatment for a definite period. The Sanitarium may be reached by a line of electric cars which run directly to the main entrance of the grounds from the Westport station on the N. Y., N. H., and H. R. R.

STAMFORD HALL, STAMFORD.

UNDER THE CHARGE OF DR. AMOS J. GIVENS,

Lately connected with the Hospitals for the Insane at Westboro, Mass., and Middletown, N. Y.

Visited in November, 1895.

Stamford Hall, for the care and treatment of mental and nervous diseases, was opened in January, 1892. As one of the few sanitariums in the country belonging to the homeopathic school of medicine, it receives patients from many different States.

The buildings are pleasantly located on high ground on Summer Street, about a mile and a half north from the center of Stamford, and consist of a main house and three cottages, having total accommodations for about seventy patients. All the buildings are heated by steam, lighted by electricity and are comfortably furnished. The patients are classified in the different houses according to the nature and severity of their cases. Voluntary patients sign a statement that they are inmates of the Hall of their own free will, and on the part of the Hall it is agreed that they shall be at liberty to leave on giving three days' notice in advance. All other patients are committed according to the usual legal requirements.

THE STAMFORD HOME, STAMFORD.

[Incorporated as the Darien Home].

UNDER THE CHARGE OF DR. J. J. KINDRED,

Formerly connected with the Bloomingdale Asylum, New York.

Visited in November, 1895, and in 1896.

This institution was first established in the town of Darien in January, 1894, and was duly incorporated by the General Assembly of 1895 as the Darien Home and Sanitarium. In September, 1895, a branch establishment, called Grey Towers, was opened in Stamford and in May, 1896, the Darien department was removed to Stamford and the two were united under the present title.

A tract of twenty-five acres of land was purchased on Summer Street about two miles north from the center of the city. The house thereon, of grey stone, has been reserved for the treatment of alcoholic and narcotic habituès and for such mild cases of mental disease as desire the higher-priced accommodations. The former stable has been remodeled as a cottage for female patients of more limited means.

Near the center of the grounds has been erected the main building of the institution, a wooden structure three stories in height, of which the second is reserved for women and the third for men. The rooms are small but comfortably furnished and the whole building is heated by hot air furnaces and lighted by electricity. An annex for male patients of small means and for the more violent forms of mental disease furnishes accommodations which are in keeping with the prices required.

The Sanitarium has a total capacity of sixty patients and, when last visited, reported only four vacancies. The considerable variety of prices here established makes it possible to receive patients of widely varying means and position. In addition to the present buildings, it is proposed to erect soon a cottage for the care of feeble-minded children.

FAIRLEA,

NOROTON.

UNDER THE CHARGE OF DR. J. E. BOWMAN,

Formerly connected with the Long Island Home, Amityville, and the New York Home for Epileptics.

Visited in November, 1895.

This is one of the latest of the institutions of this class established in the State for the treatment of mental and nervous diseases, having been opened in August, 1895. It is designed to furnish a quiet, secluded country home for a limited number of patients of this class.

A private residence, pleasantly situated on high ground about a mile and a half north from the station and surrounded with lawns and shade trees, has been leased for the purpose and attractively furnished. It is heated by steam and has been equipped with modern sanitary plumbing. The water supply is abundant and of excellent quality. An adjoining farm of sixty-five acres furnishes opportunities for golf and other forms of recreation. The whole place appears more like a pleasant country home than a sanitarium and is well suited for persons whose means are sufficient for the somewhat higher rates required.

THE SOUND VIEW SANITARIUM, GREENWICH.

UNDER THE CHARGE OF MR. ROBERT LOUDEN.

Visited in November, 1895, and July, 1896.

The Sound View Sanitarium first came under the notice of the Board of Charities in November, 1895. It is under the charge of a brother of Mr. John Louden of Louden Hall, Amityville, L. I., and is used for the care of those of his insane patients whom the laws of New York do not permit to be retained at Amityville by one who does not hold a physician's degree.

The Greenwich institution is located in a three story wooden house, and is situated on a point of land between two marshy estuaries from the Sound, a short distance south of the railway station. There are no fences inclosing the small yard about the building and the general surroundings indicate neglect.

The interior of the house, however, is pleasanter than its exterior would lead one to imagine. It is neatly but plainly furnished and is equipped with modern sanitary plumbing.

The first floor is heated by stoves while the only heat in the upper rooms and halls is received from those below. There is a common sitting-room for men and women on the first floor. The dining-room appeared neat and the food wholesome and sufficient.

As the rates are low, the institution is patronized chiefly by persons of small means and luxuries are not expected. A physician, resident in Greenwich, calls upon the patients when required. There are total accommodations for fifteen patients and at date of visit there were ten under treatment.

PRIVATE ASYLUMS.

GENERAL STATISTICS.

Number of inmates September 30, 1895	187
Patients admitted during the year	254
Total present during the year	441
Patients discharged during the year	230
Number remaining September 30, 1896	211

Ages of Persons Admitted.

Under 15	0
15 to 20	9
20 to 25	23
25 to 30	32
30 to 35	28
35 to 40	40
40 to 45	30
45 to 50	19
50 to 60	33
60 to 70	15
70 to 80	10
80 and over	1
Unknown	14
Total	254

Civil Condition.

	MALES.	FEMALES.	TOTAL.
Single	61	51	112
Married	65	66	131
Widowed	7	4	11
Total	133	121	254

How Committed.

	MALES.	FEMALES.	TOTAL.
Judges of Probate	18	22	40
Judges of City Courts, N. Y.	3	4	7
Judges of Superior Court	1	2	3
New York Physicians	7	17	24
Connecticut Physicians	3	3	6
By friends	2	2	4
Voluntarily	99	71	170
Total	133	121	254

PROVISION FOR THE FEEBLE-MINDED.

THE CONNECTICUT SCHOOL FOR IMBECILES, LAKEVILLE.

DR. GEORGE H. KNIGHT, *Superintendent.*

Visited in November, 1895, and October, 1896.

The School was established in 1859 by the late Dr. H. M. Knight, is regularly incorporated and is under the management of a Board of Trustees. In its form and organization it is a private institution, but, as the only provision in the State for the care of the feeble-minded, it is the custodian of the State's wards of that class and is the recipient of State appropriations for maintenance and necessary additions. The State authorizes the payment of a fixed weekly sum for the support of each pauper or indigent imbecile who may be committed to its care under the approval of the Governor. An annual report containing a detailed account, by the Superintendent, of the School's work and results is submitted to the General Assembly by the Board of Trustees.

The School is favorably situated on high ground on the north shore of Wononscopomus Pond, about a quarter of a mile from the railway station. The property comprises about fifteen acres sloping toward the south and includes pleasant playgrounds for the children in fine weather besides a well kept farm. The direct sunlight, good drainage and fine air of this location are conducive to health in the School as is shown by the records. The buildings consist of a main house containing dormitories, dining and school rooms, gymnasium, etc., a custodial building for incurables and a hospital erected in 1894 under an appropriation by the Legislature. This last has proved a valuable addition to the School, not only as a place for the care of the sick away from the noise of the main house but also as a quarantine station for newly admitted children. The buildings are now protected against fire by stand-pipes running through the halls and a plentiful supply of hose on each landing.

The capacity of the School is limited, furnishing accommodations for only one hundred and fifty inmates, and applicants for admission are often turned away for lack of sufficient room. It has beeen found necessary, also, to utilize certain rooms on the third floor as dormitories which were never intended for the purpose and are unsatisfactory both in location and arrangement.

For all pupils who are at all teachable a systematic course of training and studies is pursued throughout the year with the exception of a vacation during July and August. In the kindergarten department the pupils are employed with charts and exercises that require the application of only the feeblest intellect and that gradually lead up to an intelligent study of the common English branches. The results are very gratifying, the hand-writing, spelling and other exercises in many cases, comparing favorably with those of children in the common schools. During the winter months a series of entertainments, in which the brighter pupils often take part, is held weekly in the gymnasium.

For occupations the older girls sew and assist in the lighter forms of housework, while the boys are employed a part of the time in useful work upon the farm and around the premises. No opportunities for manual training have yet been provided and it is desirable that these should be introduced as soon as practicable for the benefit of those pupils who are fitted to acquire the knowledge of some productive occupation.

In his last report the Superintendent states that "the most hopeful future for the care of the feeble-minded may be looked for in the adoption of the colony plan, in which the teachable imbeciles of both sexes are cared for in the main buildings, from which there is easy access to the school-rooms. Not too far off should be other buildings which are devoted to the epileptics of both sexes. And still farther off may be buildings which shall be for the custodial cases of both sexes.

Under this system not only do we reach the imbecile class in all its various grades and give to the epileptic class the care and treatment necessary to them, but we can make use of the adult imbeciles who have been trained in the school in caring for the custodial cases. This is the most economical way and with it we get the best results.

Most important of all, the outcome of the colony plan is the fact that when we have found a method which shall care for the custodial case, whom no one wants, and the epileptic, who becomes a custodial by degrees unless his disease is arrested, and the bright imbecile who can be taught to help his weaker brother, and the moral imbecile who can have the outlet of occupation and safeguard of restraint and constant oversight, and, most necessary of all and most difficult to procure for him and his depraved tendencies, that 'charity which suffereth long and is kind'—when we have brought this about we shall have made a tremendous gain of preventing among imbeciles that disgrace to our civilization, the reproduction of their own kind."

With its present facilities, even, this School renders a valuable form of preventive service for the common good of society and provides a positive agency for the improvement of a sadly defective class of human beings.

The number of pupils connected with the School was:

During the year ending September 30, 1895	170
During the year ending September 30, 1896	180
The number of State Beneficiaries was, in 1895	130
The number of State Beneficiaries was, in 1896	135

The amount received from the State for their support was:

For the year ending September 30, 1895	$15,263 53
For the year ending September 30, 1896	$16,690 05

The cost for the support of a pauper or indigent imbecile child averages about $100 per annum more than the amount authorized by the statutes, and in such case this difference is paid by the town from which the child was committed.

GENERAL STATUTES, 1888.

COMMITMENTS TO THE SCHOOL FOR IMBECILES.

SECTION 489. "Whenever there shall be found in any town in this State any pauper or indigent imbecile child who would be benefited by being sent to the School for Imbeciles at Lakeville, the Selectmen of such town shall make application to the Court of Probate for the district in which such town is situated, for the admission of such child to said School, and if upon inquiry said court shall find that said child is a proper subject to be received into said School, it shall order said selectmen to take such child to said School to be kept and supported for such length of time as said court may deem proper. But said selectmen shall not take or commit any such child to said School, until the order of said court has been approved by the Governor, and no child shall be received at said School to be supported in any manner by the State, without the approval of the Governor. There shall be taxed by the comptroller $2.50 a week for each week such child shall remain at said School, and the principal of said School shall make his bill therefor quarterly and present it to the Governor, upon whose approval it shall be paid by the State Treasurer, and the balance shall be paid by the parents or friends of said child; or, if the child is a pauper, by the town in which said child belongs."

PUBLIC ACTS OF 1895.

CHAPTER 325.

SECTION 1. No man or woman, either of whom is epileptic, imbecile, or feeble-minded, shall intermarry, or live together as husband and wife, when the woman is under forty-five years of age; any person violating or attempting to violate any of the provisions of this section shall be imprisoned in the state prison not less than three years.

SEC. 2. Any selectman or any other person who shall advise, aid, abet, cause, or assist in procuring, or countenance any violation of section one of this act, or the marriage of any pauper when the woman in such marriage is under forty-five years of age, shall be fined not less than one thousand dollars, or imprisoned not less than one year, or both.

SEC. 3. Every man who shall carnally know any female under the age of forty-five years who is epileptic, imbecile, feeble-minded, or a pauper, shall be imprisoned in the state prison not less than three years. Every man who is epileptic who shall carnally know any female under the age of forty-five years, and every female under the age of forty-five years who shall consent to be carnally known by any man who is epileptic, imbecile, or feeble-minded, shall be imprisoned in the state prison not less than three years.

CHAPTER 350.

Nothing contained in Chapter 325 of the public acts of the present session shall be construed as affecting the mutual relations of any man and woman lawfully married.

PROVISION FOR THE DEAF.

THE AMERICAN SCHOOL, AT HARTFORD FOR THE DEAF.

MR. JOB WILLIAMS, - - - - - - - - - - *Principal.*

Visited in March and October, 1896.

This is the oldest School for the instruction of the deaf in the United States, having been incorporated in 1816 and opened for the reception of pupils in April, 1817. For some years past it has been felt that certain words in its name conveyed an erroneous impression of the aims of the School, and a change was therefore effected in April, 1895, by a resolution of the General Assembly, making its corporate title The American School, at Hartford, for the Deaf.

The buildings of the School are located on Asylum Avenue, near its junction with Farmington Avenue, and may be reached be electric cars which pass the grounds. Erected in 1821, they have given good service for a long term of years, but the time has come when it is felt that the welfare of the School would be promoted by the removal to some more retired locality and the erection of more modern and conveniently arranged buildings. A committee has been appointed, therefore, to consider plans for the accomplishment of these changes.

In November, 1895, there were in operation in the United States fifty-five public institutions for the instruction of the deaf (not including day-schools) with an attendance of over eight thousand pupils, and thirty-four private and denominational schools with an attendance of eight hundred and twenty. In New England the best known schools for the deaf, outside Connecticut, are those at Portland, Maine, at Northampton, Mass., and at Providence, R. I. All the New England States make provision through their Legislatures for the support of indigent deaf mutes and send many of them for instruction to the American School. The statistics of those so sent for the fiscal years ending May 1st, 1895 and 1896 are as follows:

	MAINE.	NEW HAMPSHIRE.	VERMONT.	MASSACHUSETTS.	RHODE ISLAND.
1895	14	11	11	70	2
1896	14	13	11	77	0

The number of Connecticut children supported in the School during the same years was, in 1895, 73 and in 1896, 70. The State has paid for their support as follows:

For the year ending September 30, 1895	$5,824.68
For the year ending September 30, 1896	$13,957.41

The apparently remarkable increase of cost for the second of these years is due to the fact that part of the allowance for 1895 was not drawn until some time in 1896, but the average for the two is about the same as that of recent years. The average number of pupils in attendance in the whole School was, in 1895, 155, and in 1896, 160.

The system of instruction in the School is eclectic. Speech, writing, pictures, the manual alphabet, signs and natural action are all made use of to secure mental development and an easy use of the English language, oral and written. Each pupil receives much individual attention, and so far as possible the method is adopted in each case under which it appears probable that the pupil will make satisfactory progress, and receive the most practical benefit.

As an efficient means for the rapid exchange of thought, for imparting and receiving information and for developing the intellectual faculties, the free use of the sign language is considered invaluable. For the ordinary vocations of life, however, the necessity for and worth of such facility in intelligible speech as deaf mutes are capable of acquiring, is clearly recognized, and particular attention is, therefore, paid to articulation. A teacher was first employed to give instruction by this method in 1857, and since that date, with the exception of a period of five years, special instructors in articulation have been regularly employed. A searching and prolonged trial is made by expert teachers of all new-comers to determine their proficiency in acquiring speech and speech-reading, and each pupil who shows promise of reasonable success receives one hour's instruction in this branch daily throughout the course.

In speaking of the increased attention now paid to the oral instruction of the deaf, the Superintendent, in his last report, says, "The danger is that teachers in their new found zeal will conclude that oral teaching is sufficient and best for all. A large percentage of the deaf under proper methods can obtain a very useful amount of speech and lip-reading, but there is also a large percentage of them that would be greatly restricted in their mental development, if allowed no other means of instruction. The American School is striving to take the golden mean, placing first in importance mental development and a knowledge of written language, and adding thereto in the case of every child speech and lip-reading to the degree that his capacity and adaptability allow him to acquire them."

The pupils, under a staff of twenty instructors, four of whom are teachers of articulation, are in School from 9 A. M. until noon and from 2 to 4 P. M. Visits were made to various school-rooms while the classes were in session, and the methods of instruction by reading, speech, lip-reading, manual spelling, pictures, pantomime and the sign language were seen in actual operation. Exercises were conducted to show both the training of the younger pupils in writing, speech-reading and formation of sentences, and the attainments of those further advanced in composition, history and mathematics. The pupils acquitted themselves most creditably, and proved that they had been under thorough and painstaking instruction.

It has been found by experience that eight years is the earliest age at which it is expedient to receive children into the School. The usual length of time required for the education of a pupil in passing from the position of a beginner in the kindergarten department up to and through the highest grade is ten years.

In addition to the cultivation of mental discipline, all the boys who are old enough to work receive instruction in departments of manual training. Two shops connected with the School and under the charge of shop masters, are used for shoe and cabinet making respectively. In the shoe shop twenty-six boys are employed in repairing the shoes worn by the inmates, and in making various grades of footwear for sale. "Shoemaking proves a useful trade for many boys, as it requires but little capital. One may start in the trade almost anywhere, and seldom does a good cobbler fail to find sufficient work to enable him to make a comfortable living."

In the cabinet shop, where the same number is employed, the chief occupation is making tables, wash stands, chests of drawers and repairing broken or worn-out pieces of furniture; bookcases, chiffoniers and other articles are made to order when required. "The boys learn how to use wood-working tools, and when they have finished their school course they find it comparatively easy to secure employment in carpenter shops, furniture establishments or in any other occupation in which that class of tools is used." The time spent in shop work is from 7 to 8:45 A. M., and from 4:30 to 5:45 P. M., daily. Boys not old enough to work in the shops assist in making sheets and pillow cases.

Other departments in the School course are systematic drill in Swedish gymnastics and instruction in drawing for the technical education of those who show a taste and capacity in that direction.

Religious services are held in the chapel on week day mornings and twice on Sundays.

The girls' duties before and after school hours consist of sewing and mending and light house-work in the kitchen and dormitories; two hours per day are usually thus occupied.

Separate play grounds are provided for boys and girls, and there is also a detached building for use for amusement purposes in bad weather, and during the winter season, In midsummer there is a vacation of eleven weeks, which it is expected that the pupils will spend at home. The change of scene and chance for holiday recreation are an advantage to them, and their absence from the School gives an opportunity for the necessary repairs and house-cleaning.

THE MYSTIC ORAL SCHOOL, MYSTIC.

MRS. J. I. MCGUIGAN, *Superintendent.*

Visited in December, 1895 *and in March and September*, 1896.

The Mystic Oral School is the institution which, for some twenty years, was conducted as the Whipple Home School for the Deaf by various persons of that name and family. After the sudden disappearance of the former principal, Mrs. Margaret Whipple Hammond, in the session of 1894–5, the School was reorganized under its present title by Mrs. J. I. McGuigan who is Mrs. Hammond's only surviving daughter. Mrs. McGuigan resides in Philadelphia and visits the School whenever its affairs require her presence.

The School is finely situated on high ground about two miles north of the village of Mystic and occupies a large wooden house which was formerly used as a private summer residence. A number of improvements in its equipment have been made since the last year in the introduction of a bath-room and lavratory, of neat iron beds and new bedding, and of a fire-escape from the third floor. The building is still heated by stoves, however, one in every room, and attention is called to the need of adopting some safer and more healthful system. The school-rooms are located in a detached building, the upper floor of which has been fitted up with bed-rooms for the use of the older boys. New desks and school furnishings have been included in the recent improvements and the rooms appeared neat and attractive.

The pure oral system of instruction, which has been followed from the founding of the School, is still continued under the direction of a principal teacher and two assistants. Signs are not used and the pupils are taught the common English branches solely by articulation and lip-reading. Classes are conducted in language, geography, arithmetic, United States History, current events and drawing, and individual training is given in addition to class instruction. Kindergarten work is made a feature for the younger pupils and systematic exercise in gymnastics is given to the whole School. Five hours a day are spent in the school-rooms and the school year extends from the middle of September to the middle of June with a short vacation for the Christmas holidays.

When visited by a delegation from the Board in March, 1896, the scholars were called together and were drilled in exercises to show the results of their system of teaching. A number of them appeared to be of an inferior grade of intelligence, and excuses were made for their lack of proficiency in various branches on the ground that the work of instruction, prior to the inauguration of the present regime, had been very imperfectly conducted.

At the beginning of the present year, there were twenty-four pupils in attendance. Besides the teachers and matron, there are two attendants in charge of the boys and girls and the necessary number of domestics in the service of the School. A hearing person rooms on each floor with the scholars. When not in school, the boys assist in out-door work and the girls are instructed in sewing and the lighter forms of housework. The only manual training provided is some small exercise in wood carving and knife work and no opportunity has yet been offered for learning useful trades.

Although, as previously shown, the School is a private institution whose resources are limited and whose management is in the charge of an individual who lives at a great distance, the appropriation of State funds for its use, on the basis of two hundred dollars for each pupil, has nevertheless been continued. The State is not represented in its management, there is no Board of Trustees or Executive Committee responsible for its affairs, and in the interest, therefore, of the State and its indigent deaf wards, the continuance of State appropriations is not recommended.

Pending the investigation of its affairs in the year 1895, the payment of State funds was, for a time, withheld but during the year ending September 30, 1896, the State expended $4,249.66 for the maintenance of this private school.

PROVISION FOR THE BLIND.

THE CONNECTICUT INSTITUTE AND INDUSTRIAL HOME FOR THE BLIND, HARTFORD.

Visited in April and September, 1896.

Prior to the establishment of the Connecticut Institute and Industrial Home for the Blind in 1893, the only provision for the education of blind persons in the State was an arrangement under which they were cared for at the Perkins Institute at South Boston.

The Connecticut Institute is the outgrowth of a movement to provide for the more general education of persons of that class and to furnish an opportunity for the acquisition of remunerative trades by those blind persons who, having passed the limit of age (eighteen years), are ineligible for admission to the Perkins Institute. The State Board of Education of the Blind has a controlling influence in the management of the Institute and contracts with its officials for the care of many of the blind wards of the State.

It is provided in the statute establishing the Board that all resident blind persons of suitable age and capacity shall receive such instruction in the simple branches of education as the Board may deem expedient. In its published rules the Board deems it expedient that all persons admitted to the privileges of State pupils shall receive a continuous course of instruction calculated to encourage self-reliance, and to qualify pupils to enter upon some self-sustaining occupation. For the accomplishment of these ends, therefore, the Institute and Industrial Home was established with two distinct departments.

KINDERGARTEN AND YOUNG WOMEN'S HOME.

This department is located at 1205 and 1207 Asylum Avenue in a double brick house which was bought and fitted up for its uses. Here children who have reached school-age are received as State pupils and are given instruction in the simple exercises of kindergarten work and primary studies, while enjoying at the same time the tender care of a comfortable home. As soon as they become sufficiently advanced it is the intention to send them from the kindergarten to be educated in the ordinary English branches at the Perkins Institute. While there the progress of their studies will be carefully watched, and it will be noted in which directions they individually show the greatest lack or proficiency. At the end of a few years it will be possible to determine whether it would be better to allow a child to remain and have the advantages of the higher grades of instruction of a full course, or to remove and place him in surroundings better suited to his taste and capacity.

Under an appropriation granted by the General Assembly of 1895, a commodious brick building, three stories in height, has been added to the Asylum Avenue property to provide separate accommodations for young women. The first floor forms a large hall for entertainments and exercise where systematic training in gymnastics is given to both the children and the young women. The upper floors furnish rooms for eight young women besides a large sitting and work-room where instruction is given them in sewing, knitting and other forms of handiwork. On the third floor, also, a room has been fitted up for the instruction of the children in Sloyd work, and practice in clay-modeling and wood-working is conducted under the direction of an experienced teacher. Considerable attention is paid to the practice of music by all inmates of the Home.

When last visited there were thirty-two pupils in attendance in this department, eight young women and twenty-four children, who were under the charge of two matrons and a staff of four teachers besides the instructor in music.

INDUSTRIAL HOME.

This department was opened in November, 1893, and is designed to furnish industrial training for those blind persons who have passed the limit of age for admission to the Perkins Institute, and for others of suitable age and capacity who may, or may not, have enjoyed the advantages of that institution in earlier years. The Industrial Home is located at 334 Wethersfield Avenue in a three-story brick building which was especially erected for its uses. This has been enlarged within the past year by an addition made under the Legislative appropriation of 1895, which provides dormitory accommodations for twenty-five men and boys, and quarters for the printing-office of the Institute. The other industries carried on are chair-caning and repairing, mattress making and the manufacture of brooms. The first floor of the original building is occupied by a general store called "The Pioneers," which is also conducted largely by blind people. The young women who are employed in the store and the printing-office find rooms in the house at No. 335 on the opposite side of the avenue.

Considerable business has been done in each of the industries, and the report of the Institute for the period from its opening until September 30, 1895, shows a fair amount of earnings for the various departments. If this can be continued and increased, the income thus obtained should assist materially in placing the enterprise on a self-sustaining basis.

A prominent feature of the Institute is its concert company which consists of an orchestra, brass band and other performers, and gives frequent entertainments in various places for the purpose of acquainting people with the work of the institution and of raising additional funds to supply its demands. Members of the orchestra devote all of their time to the study and practice of music, while members of the band endeavor at the same time to acquire the mastery of remunerative trades in the Institute.

It has been stated by the President of the Institute that a period of two years of training should be sufficient for the average pupil to become self-supporting at his chosen occupation, but in order to accomplish this it would seem to be necessary that he should not be too often interrupted in his work.

The whole number of State pupils under the charge of the Board of Education of the Blind during the last year was seventy-two, of whom twenty were supported ot the Perkins Institute and fifty-two at the Connecticut Institute, twenty-nine being in the kindergarten and young women's department and twenty-three in the Industrial Home.

The expense to the State for the care and education of the blind was:

For the year ending September 30, 1895	$21,615 06
For the year ending September 30, 1896	$23,326 09

PUBLIC ACTS OF 1893.

CHAPTER 156.

AN ACT FOR THE EDUCATION OF THE BLIND.

All Blind Persons Entitled to Receive Instruction.

SECTION 1. All blind persons, or persons so nearly blind that they cannot have instruction in the public schools, who are of suitable age and capacity for instruction in the simple branches of education and who are legal residents of this State, shall be entitled to receive such instruction and for such a length of time as may be deemed expedient by the Board of Education of the Blind hereinafter provided for; the expense of such education to be paid by the State, to an amount not exceeding three hundred dollars for each of said persons in any one year, except that where the parents of such blind persons are not able to provide for his or her clothing and transportation, an additional sum of thirty dollars per year may be allowed for those expenses.

Organization of the Board of Education.

SEC. 2. The Board of Education of the Blind is hereby established. The Board shall consist of four members, of whom the Governor of the State and the Chief Justice of the Supreme Court, for the time being, shall be permanent members. The other two members shall be appointed by the Governor and shall be a man and a woman, one of whom shall be a blind person, both residents of this State. Their term of office shall commence on the first day of July, in the year when they are appointed, and shall continue for four years, except that one of the members appointed the first year shall hold his or her office for only two years, the Governor designating at the time of the appointment which of the two shall thus hold for only two years.

Board may Contract with Institutions.

SEC. 5. The Board is authorized to contract with any institution or institutions within this State, or in any other State, having facilities for the instruction of the blind, for the education of the blind persons from this State found by the Board to be fitted for such instructions, but within the expenditure therefor provided in the first section of this act.

Board may Compel Attendance.

SEC. 6. Said Board shall be empowered to compel attendance of any minor blind child at any such institution.

PUBLIC ACTS OF 1895.

CHAPTER 303.

AN ACT RELATING TO INSTRUCTION OF THE BLIND.

Provision for Education of the Blind.

SEC. 1. The State Board of Education of the Blind may, by a unanimous vote of all the members, provide such suitable buildings, furniture machinery, tools, implements, and apparatus for the use of the Connecticut Institute and Industrial Home for the Blind as it shall deem necessary to enable said institution successfully to carry out the rules adopted by said Board, providing for the instruction of the Blind; but shall not expend more than fifteen thousand dollars for such purposes during the next two years.

State Lien on Buildings.

SEC. 3. The payment of any sum hereunder shall create a lien on the land and buildings of said Connecticut Institute and Industrial Home for the Blind, which lien shall be foreclosed on behalf of the State of Connecticut, if said land or buildings are ever diverted from their present use.

PROVISION FOR THE SICK.

HOSPITALS.

There is now either public or private hospital provision in each of the seventeen cities in the State, with the exception of Ansonia, Derby, Rockville, New Britain and Middletown. The movement to establish a public hospital in New Britain has made considerable progress and a desirable piece of property has been bought for the purpose.

Charters were granted also by the last Legislature to certain citizens of Middletown and Winsted incorporating them under the names of the Middlesex Hospital and the Litchfield County Hospital, respectively, for the purpose of establishing general hospitals in those places.

There are at present in the State:

Twelve General Hospitals.
Two Emergency Hospitals.
Two Private Hospitals (one of which is solely for nervous cases).
Two Cottage Hospitals (available for town patients).

Private Hospitals in the larger cities for the care of regular patients of practising physicians, are not included in the above list.

For the General Hospitals annual appropriations from the State, showing the total amount, have been granted as follows:

For the year ending September 30, 1895, to 7 Hospitals .	$26,500 00
For the year ending September 30, 1896, to 10 Hospitals.	$44,333 33

In addition to these amounts there was paid as special appropriations for building purposes during the first of the two years mentioned, $5,000 each to the Norwalk Hospital and to the Day-Kimball Hospital at Putnam; and during the second year, $25,000 to the new Stamford Hospital.

A detailed account of the Hospitals classified as (1) Hospitals aided by the State, and (2) Hospitals not aided by the State, is given in the following pages.

I. Hospitals Aided by the State.

The General Hospital Society or the New Haven Hospital,

CEDAR STREET, NEW HAVEN.

Mr. J. H. Starkweather, *Superintendent.*

Visited in May, 1896.

The New Haven Hospital is the oldest in the State, having been established in 1827. It is situated in the southwestern part of the city and occupies a block of about seven and a half acres. Electric cars on Congress and Sylvan Avenues pass near the entrance. The central building is an ancient structure of stuccoed brick erected in 1833, and contains the administration offices, rooms for private patients, and a maternity ward. The nurses' dining-room and the general kitchen are also situated here, and the latter has proved to be badly located as well as inconvenient and unhealthful for those who work in it. An entirely new administration building is urgently needed, but, as there is no immediate prospect of securing the necessary funds, plans have been prepared for the erection first of a new kitchen and nurses' dining-room to adjoin the old building on which it is hoped to begin work this fall.

The original building has been kept in good repair, however, and all the private rooms have been remodeled and newly furnished within the past year.

Adjoining the administration building on the south side is a large three-storied structure of brick, erected in 1873, which contains the five principal wards classified as medical, surgical and mixed, besides one for children. Each ward has its own dining-room and pantry connected by dumb-waiter with the general kitchen. An improved system of ventilation has been introduced throughout the building and fire-escape towers at the corners furnish ready means of egress from all the wards.

Beyond this building and connected with it is the Farnam operating theater which was given to the Hospital in memory of Dr. George B. Farnam of New Haven and was occupied first in January, 1889. The operating room proper is well lighted by means of a glass roof and is surrounded by abruptly rising tiers of seats for the use of students from the Yale Medical School. It contains all the improved apparatus required in modern surgery and has been equipped recently with a complete set of antiseptic furnishings. There are additional rooms for etherizing, recovery, etc., and an accident room for the treatment of emergency cases.

To the north of the administration building and also connected with it, are the Chapel and the Gifford Home for Incurables, a charitable foundation under the management of the Hospital directors, of which a more detailed statement may be found under the head of Private Provision for the Aged and Infirm.

Two detached cottages on the grounds are used for purposes of isolation in an emergency, but the rules of the Hospital forbid the admission of patients insane or suffering from contagious diseases.

Among the improvements contemplated by the Hospital management, is the erection of a separate building or wing for a new maternity ward to take the place of the present temporary and contracted quarters, and about seven thousand dollars have been subscribed already for the purpose. A piece of property, valued at $50,000 has also been bequeathed to the Hospital Society to build and equip a separate ward for children, and, pending its sale, the rental thereof will be applied to the building fund.

During the year 1895, the total number of patients under treatment was one thousand and eighty-four.* Of these only ninety-one paid the full cost of their support; seven hundred and sixty-nine were partially, and two hundred and twenty-four wholly supported by the funds of the Society. Nineteen hundred and thirty-four weeks were occupied by town patients receiving the benefit of the State appropriation (five thousand dollars) at the rate of two dollars and fifty-eight cents per week. The average cost of supporting each patient in the Hospital was eight dollars and eighty-six cents per week. As but seven dollars a week is charged in the wards for-so-called ''self-paying'' patients, and but five dollars a week for town patients, a large deficit annually has to be made good from the funds of the Society. The patients admitted during the year came from sixty-nine different towns and villages in this State and from twenty-two other States and countries. The largest number of patients in one day was one hundred and thirty-two; the smallest number, ninety-five, and the daily average one hundred and eleven. The number of ambulance calls was one hundred and ninety-two. United States marine and State soldier patients are admitted under a contract with the Government and in accordance with the provisions of the general statutes.

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*See Sixty-ninth Annual Report, General Hospital Society.

The Connecticut Training School for Nurses was established in connection with the Hospital twenty-two years ago. Pupils are received from any State and remain in the School for a period of two years, pursuing their studies and daily routine of work under the charge of the superintendent of nursing. Each nurse is assigned to the several departments in turn, and in the course of a year has studied medical, surgical and obstetrical nursing, and also the preparation of special dishes for invalids and convalescents. The number of pupils, together with the head nurse and assistant, averaged forty-one during the past year.

THE HARTFORD HOSPITAL, HARTFORD.

MR. LEANDER HALL, - - - - - - *Superintendent.*

Visited in March, 1896.

The Hartford Hospital was incorporated by act of the General Assembly in 1854, and is the second oldest institution in Connecticut for the care of the sick and injured. It occupies a triangular piece of property of about seven acres in extent, situated in the southern part of the city and bounded by Retreat Avenue, Jefferson and Hudson Streets, and may be reached by a Vernon Street car from the City Hall. The large main building substantially built of brown stone, was erected in 1857 and has been enlarged by several additions, so that at present the Hospital furnishes accommodations for something over two hundred patients. All parts of the institution are well lighted and ventilated and are supplied with excellent systems of hot water heating and gas lighting. Connection is had with the city's departments of water and sewers.

There are six organized sections for the treatment of cases, as follows: Medical, surgical, orthopoedic, eye and ear, gynaecological, and obstetrical. In addition to the general wards, there is maintained a separate ward for children with accommodations for twenty-one patients. Through the generosity of Hartford ladies a spacious veranda was built on the south end of the children's ward to serve as a convenient playroom and airing-place for convalescents.

In January, 1894, a detached building for the special care of contagious diseases was completed at a cost of about $25,000 and since that time has been in constant service. It is a two-storied brick structure, one hundred and nine by forty-eight feet in size, and has ample accommodations for nineteen patients besides the attending staff of doctors and nurses. The disinfecting apparatus and the system of heating and ventilating are of the best modern type, and all details of construction and appointments have been planned with reference to the latest developments in medical science.

The medical staff of the Hospital is composed of a resident physician and a resident surgeon with an assistant for each, and fourteen visiting physicians and surgeons of the city who serve according to a fixed schedule. The price for patients in the general wards is $6 a week, which includes medical and surgical attendance, food, nursing and washing. Patients in private rooms pay according to the accommodations and service received.

The operating room is located on the second floor and has been furnished recently with new tables, sterilizers and apparatus of the most approved construction and design. An elevator for the transportation of patients from the floor below is urgently needed, as is also a house for the nurses separate from the main buildings, where they can obtain rest and a change of surroundings when off duty. An isolated building for the treatment of consumption will also be required in the near future.

During the year ending September 30, 1896, the total number of patients under treatment was one thousand, six hundred and ninety-two, a gain of two hundred and sixty-one over the number for the preceding year.* The average cost per week for each patient was $7.84½.

The annual appropriation from the State of $5,000 partially supported one thousand and forty-five patients at the rate of $1.08 per week for each. State soldiers and United States marine patients are received under the provisions of the statutes of 1878, 1882 and 1884, but the number of applicants from each class is very small.

The Hospital is in daily receipt of valuable supplies of milk, cream, fruit and vegetables from Wild Wood Farm. The farm is finely located on the main road at a short distance from the city and consists of an estate of one hundred and eight acres, which, together with the buildings, stock, implements, etc., was bequeathed to the institution in 1888 by the late Mr. David Clark.

The Training School for Nurses in conection with the Hospital was established in 1877 and offers the usual two years' course of instruction in professional nursing, by means of lectures, recitations and practical work in the wards. Diplomas were granted to a class of ten graduates in October, 1895, and the number in training during the present year is thirty-one.

Visitors are welcome to the Hospital every week day between the hours of 2 and 5 P. M., and on Sundays for the purpose of attending the religious services.

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*See Forty-First Annual Report, Hartford Hospital.

THE BRIDGEPORT HOSPITAL, BRIDGEPORT.

MR. JOHN H. BEACH, *Superintendent.*
Visited in September, 1895, *and September*, 1896.

The Hospital is situated in East Bridgeport about two miles from the center of the city and one block from the Barnum Avenue electric cars. The location is a fine one on high ground and commands extensive views of the city and of Long Island Sound. The Hospital was chartered in 1878 and in 1881 the State granted $50,000 on condition that a site should be furnished and an equal amount raised from other sources. This was accomplished in 1882 and the Hospital was completed and occupied in 1884.

The building is a large one of brick and consists of a main portion containing the administration offices, quarters for the superintendent and resident physicians and private rooms for patients, and of two wings containing the medical wards for men and women, each one story high and well lighted and ventilated.

A good sized addition to the Hospital has been completed since the last Report at a cost of about $25,000, the generous gift of Mrs. Mary Wood of Bridgeport. It contains on the first floor the men's surgical ward, additional rooms for patients, closets, etc., and on the second floor an etherizing room, surgeons' consultation room and a large operating room equipped with all the most improved appliances required by modern surgery which are marvels of cleanliness and freedom from infection. The room has tiled walls and floor and a glass roof sloping toward the north. An elevator also has been added in this part large enough to accommodate a cot or stretcher at full length.

The women's surgical ward is situated in the main building and the corresponding ward, formerly used for men, is now occupied as a children's ward. This was completely equipped by an association of ladies in the city who provide also clothing etc., for the children. It is daintily and comfortably furnished in light colors, the walls are hung with pretty pictures and the room has a cheerful appearance unusual in a hospital ward.

The whole Hospital is lighted by gas and is furnished with a complete system of steam heating and ventilation. An ample supply of pure water is obtained from an artesian well.

During the year ending September 30, 1896, the whole number of patients admitted was five hundred and sixty-one,* coming from forty-one towns in Connecticut and from towns in ten other States and countries. Soldiers and sailors who served in the late war are received according to the provisions of the statute under which the Hospital was established.

The ordinary charge for treatment in the general wards is $7.00 per week, which includes medical and surgical treatment, board, medicines and nursing. The price in all cases is fixed so low as to make the Hospital a charitable institution to as great an extent as its funds will permit. The average cost per week for each patient was $8.21. The recent additions to the Hospital buildings make total accommodations in the institution for eighty patients, and the number of free beds supported in perpetuity by gifts of endowment funds has been increased to sixteen.

A training school for nurses is carried on in connection with the Hospital and public graduating exercises are held annually in the city in April, the last class numbering nineteen. A home for the nurses entirely separate from the Hospital building is greatly desired.

THE WATERBURY HOSPITAL, WATERBURY.

MISS MARY FELTER, *Matron.*

Visited in December, 1896.

The matter of establishing a hospital in Waterbury was first brought to public notice through the medium of the local press in 1882. The suggestion was favorably received and active steps in support of it were taken by presenting an application for a charter to the General Assembly during the January session, 1883. The charter was duly granted in March of the same year. The work of soliciting subscriptions was begun and earnestly carried on, and by December, 1886, the fund had reached the sum of $34,000. An application for a grant in aid was made to the Legislature in 1887, and a resolution was passed appropriating $25,000 for the purpose, on condition that the amount then in hand should be increased to $50,000 by private contributions. By March, 1889, the whole of the required amount had been raised.

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* See Seventeenth Annual Report, Bridgeport Hospital.

Among the early contributions received was the generous bequest from Mr. E. L. DeForest of Watertown of $25,000, which enabled the corporation to purchase in 1886 the property now in use. This consists of a large private house finely located on a high bluff, and six acres of land artistically laid out with walks, drive-ways, trees and flowering shrubs. It is distant about three-quarters of a mile from the center of the city and may be reached by a short walk from the end of the West Main Street railway. For the purpose of the Hospital the interior of the house was radically changed, and the whole establishment thoroughly repaired and equipped with improved modern appliances. The work was finished in January, 1890, and in the same month the Hospital was opened with accommodations for twenty patients. In less than six months afterwards it was found that its capacity was not equal to the necessities of the case, and a two-storied wing containing male and female wards with provision for forty-four beds was promptly added to the main building. The wards are lighted by gas, warmed by hot air and provided with an improved system of ventilation.

With the removal of the general patients to the wards, the second floor of the main building was rearranged as rooms for private patients which are cheerful and well-furnished and, together with the wards, provide a total capacity for fifty beds.

The charge for treatment in the wards is $7.00 per week and in the private rooms is graded according to the accommodations occupied. Five free beds are supported by endowments. The operating room has recently been equipped with new antiseptic furnishings of the most approved design, a gift from the pupils of the Gerard School in the city.

An attractive cottage containing ten bed-rooms, besides reception and other rooms, was erected on the grounds in 1893 for the use of the nurses and was presented completely furnished to the Hospital by one of its Directors. Other buildings are a detached structure for laundry purposes, and an isolated cottage for the treatment of contagious diseases.

The number of patients under treatment during the year ending December 9, 1896, was 320, who represented twenty-one different towns in Connecticut and five other States and countries. An annual appropriation of $2,500 was made by the General Assembly of 1895 for the support of charity patients, and a large number are so assisted every year.

The attending medical staff consist of eight local physicians and surgeons, who serve in turn, two at a time, for a period of three months each. In addition to these a consulting staff of four physicians and surgeons, who reside in neighboring towns, has recently been appointed.

All the departments of the Hospital present an inviting appearance of neatness and good order, and this, together with the retired situation and picturesque surroundings, make the Hospital an attractive home for the sick and injured people of the city.

THE DANBURY HOSPITAL,

DANBURY.

Miss Converse, *Superintendent.*

Visited in January, 1896.

The movement to establish a hospital in Danbury first took definite shape in March, 1882, when a public meeting was held for the purpose and a Board of Managers was appointed. Until more permanent quarters could be secured, two cottages, which a Danbury physician had built for a private hospital, were purchased by the Association in 1885 and were used for the purpose until the opening of the present building on February 1, 1890. The institution was incorporated by the General Assembly in 1886 and the collection of a building fund was then actively begun. In this way $14,000 were raised and an equal sum was secured from appropriations made by the State at various times.

The Hospital is a wooden structure pleasantly situated on high ground about a mile northwest from the center of the city and is surrounded by four acres of land. The drainage is excellent and the water supply received from a lake at a distance is abundant. A large water tank in the upper part of the building affords a uniform pressure and an ample protection against fire. The building has accommodations for twenty-four patients with separate wards for men and women and a small room that is used as a children's ward. On the second floor are a well-equipped operating room and a number of private rooms for patients. The demand for the latter has exceeded the supply to such an extent that it is expected to erect a new wing containing an additional number of private rooms during the present year. The building is heated by steam and at the time of visit preparations were being made for the introduction of gas for illuminating purposes.

The services of the ambulance, which is maintained in connection with the Emergency room in the City Hall, can be secured at any time by telephone.

During the period from April 1, 1894, to January 1, 1895, eighty-one persons received treatment of whom twenty-three were charity patients. They came from thirteen towns in Connecticut besides towns in the State of New York. The regular charge for treatment to patients in the general wards is $5 a week. Each patient chooses his or her own physician as none is officially connected with the Association. The Hospital is open to all schools of practice as selected by the patients, and the physicians are paid for their services by the patients and not by the Association.

A training school for nurses was opened in connection with the Hospital in April, 1894. The first class of four members graduated in June, 1895, and at the date of visit seven nurses were receiving instruction through recitations and lectures by physicians of various schools.

GRACE HOSPITAL,

NEW HAVEN.

MRS. J. B. HAM, *Matron.*

Visited in April, 1896.

Grace Hospital is located on West Chapel Street in the heart of one of the residence portions of the city and may be reached by electric cars which pass the door. The building now in use stands in a spacious yard of four acres and was formerly a private residence. The interior of the house was thoroughly renovated and such alterations were made as were needed to fit it for the proposed service.

The Hospital was opened for the reception of patients in November, 1892, and by recent changes in its interior arrangements has increased its accommodations to a present capacity of between twenty-five and thirty patients. In addition to the general wards for men and women, there are eight rooms for private patients, several of which have been furnished as memorials by friends of the Hospital. One free bed is supported by endowment. A well-arranged operating room is equipped with modern apparatus, and the Hospital has the aid of the city ambulance service.

The method of treatment is homeopathic, exclusively, but not of the high dilution order. Patients are attended by a staff of twelve physicians and surgeons of that school of medicine who serve for periods of two months in rotation. Other homeopathic physicians are admitted when desired by private patients. It is expected that a resident physician may soon be connected with the Hospital. At present Grace Hospital is the only one of the homeopathic school in the State.

A training school for nurses was opened in connection with the Hospital in September, 1895, and at the date of visit had nine pupils in attendance. A two years' course of instruction is conducted by means of recitations, lectures by the attending physicians, and practical work in the Hospital departments.

The Hospital was chartered in 1889 and a resolution was passed by the General Assembly appropriating $20,000 as a grant in aid of the institution on condition that $8,000 should be raised from private sources. It is the intention of the management to erect on the present site, a building especially designed for hospital requirements at the earliest date practicable.

THE MERIDEN HOSPITAL,

MERIDEN.

MRS. HENRY BOWMAN, *Matron.*

Visited in October, 1896.

The Hospital in its present form dates from December 21, 1892, at which time it was publicly opened for the reception of patients. It is situated on Cook avenue in the southwestern part of the city, and occupies a large wooden house of three stories, which was formerly a private residence and stands well back from the street.

The State appropriated $25,000 in aid of the institution, and this amount, together with the contributions from private sources, enabled the trustees to buy the property, consisting of the house and three acres of land, to remodel the house for its present purpose and to furnish it with the necessary hospital appliances. It has accommodations for twenty-one patients in wards and private rooms, is heated by hot water and lighted by gas. It is fitted also with an elevator running from basement to attic. A new operating room has been fitted up within the last year and has been equipped throughout with antiseptic furnishings of the most approved design. Other improvements have been a new bath-room and lavatory and the extension of the heating apparatus to the third floor of the building.

The medical staff consists of four city physicians and surgeons, two of whom serve alternately for a period of two months. The general charge for patients is $6 per week, which includes medical and surgical attendance, food, nursing and washing.

From the date of opening up to October 12, 1896, four hundred and two cases coming, with few exceptions, from Meriden and vicinity, had been received for treatment. A considerable proportion of these have been surgical operations and it is gratifying to note that not a death has occurred among this class of patients.

A visiting committtee composed of fifty-two ladies, two of whom serve in turn for two weeks in succession, generously assist in the support of the institution, and in the performance of kind offices for the comfort of the inmates.

THE NORWALK HOSPITAL,

NORWALK.

MISS D. L. BAKER, *Head Nurse.*

Visited in April, 1896.

The Norwalk Hospital Association was organized in December, 1892, under the general laws of the State, and in July, 1893, the present quarters were opened for hospital purposes. They consist of the second and third stories of a private house at No. 24 Leonard Street near the business center of Norwalk and furnish accommodations for ten patients. At present they are best adapted for emergency and accident cases. Sixty-eight patients received treatment during the year ending December 1, 1896, of whom thirty-five were charity patients, wholly or in part. The Hospital is provided with telephone facilities and maintains an efficient ambulance service.

The medical staff consists of eight physicians and surgeons who are members of the Norwalk Medical Association and serve in turn, two at a time, for a period of two months each. The Head Nurse has two assistants and Mrs. Merritt, the owner of the house, acts as matron. All parts of the Hospital appeared exceptionally neat and well managed. Applicants for admission are received on approval of the members of the Executive Committee who determine whether the applicant shall be admitted as a free or paying patient. The ordinary charge per week is seven dollars which includes medical and surgical attendance together with medicines, nursing and washing. Members of a Board of Lady Visitors call at the Hospital every week and do quiet but effective work in supplying needed comforts for the inmates.

Some two years ago, the Directors purchased for $4,000 a portion of an estate situated about half way between Norwalk and South Norwalk on the summit of a hill back of the Armory and near the main avenue connecting the two places. Doubt has been felt, however, as to the practicability of erecting a permanent building upon this site, and the Hospital is still awaiting settlement in larger and more convenient quarters.

The Hospital has been supported so far by the contribuions of churches, societies and friends, and by the fees from the members of the Association. The General Assembly of 1895, however, voted it an appropriation of $2,500 a year for a period of two years which now places this Hospital in the list of State-aided institutions.

THE MEMORIAL HOSPITAL,

NEW LONDON.

MISS M. J. WALLACE, *Superintendent.*

Visited in January, 1896.

The Memorial Hospital of New London is situated on Garfield Avenue about three-quarters of a mile west from the center of the city. A fine site comprising about five acres of land on a high ridge was contributed by the city for the use of the Hospital Association. A charter was granted to the incorporators by the General Assembly of 1893, and on August 1 of that year, the building was opened for the reception of patients.

The main building and the ward now used for men were the generous gift of the Hon. J. N. Harris, of New London. The Board of Trustees contributed the funds required for furnishing the Hospital and for providing the necessary supply of medicines and surgical instruments. The Hospital was soon occupied to its full capacity and applications for admission became so urgent that the need of enlarged accommodations was strongly felt. This has since been met by the liberality of the Hon. George F. Tinker whose gift of about six thousand dollars has provided for the erection of a new wing upon the westerly side of the building which contains separate wards for women and children besides three rooms for private patients upon the upper floor. It was opened for use in March, 1895, and has increased the total capacity of the Hospital to accommodations for thirty patients which is ample for all present demands.

The ordinary charge to patients in the general wards is $10 a week, which includes medical and surgical attendance, nursing, medicines, food and washing. The price represents, as nearly as can be estimated, the actual cost of maintaining patients in the general wards. An abatement from this price may be made at the discretion of the Executive Committee. Patients who are entirely unable to pay for their treatment will be admitted to the Hospital without charge, so far as the funds of the Association will allow. A large amount of charity work is done, as may be seen by an analysis of the Treasurer's report which shows that the receipts from patients do not equal one-quarter of the cost of maintenance. The Hospital has had no fixed endowment but has been supported by the annual contributions of its friends: The General Assembly of 1895, however, voted an annual appropriation of $5,000 for the use of the Hospital which will substantially increase its service and usefulness. One free room has been handsomely furnished and endowed by Mrs. Nellie Osgood Tyler who also presented the Hospital with an ambulance of modern construction and complete equipment.

The Medical Board consists of twelve physicians and surgeons of the city representing both schools of practice; three members of the Board compose the visiting staff who are assigned to duty in regular rotation.

During the period from March 4, 1895, to January 30, 1896, one hundred and six cases were treated of which about two-thirds were of a surgical nature. Insane persons and those suffering from contagious diseases are not admitted. The contract with the United States Government, under which the Hospital formerly cared for a large number of marine patients, was discontinued July 1st, 1894, on account of lack of room and will probably not be renewed until a separate ward can be provided for their use.

A training school for nurses has been established in connection with the Hospital in which the pupils receive a two years' course of training and instruction by the attending physicians and surgeons and by the superintendent of nurses. The principles and practice of nursing are taught in recitations, lectures, and demonstrations, and by practical work in the different departments of the Hospital. Stated examinations are held and those whose conduct and work are satisfactory for the whole period receive the diplomas of the School.

The Hospital receives an ample water supply from the city's system of water works and discharges its drainage into the city sewers. The building is heated by hot water and at present is lighted by kerosene lamps which should be replaced by electricity or some other modern system of lighting.

The Memorial Aid Association, representing the various churches and societies of New London and vicinity, was organized in March, 1893, and assists the Hospital in providing necessary articles of clothing and bedding, books, delicacies, etc.

THE WILLIAM W. BACKUS HOSPITAL, · NORWICH.

MR. FREDERICK SYMINGTON, *Superintendent.*

Visited in May and September, 1896.

This institution is a conspicuous instance of the expenditure from private sources of a large amount for hospital purposes without the solicitation of any aid whatever from the State, and forms a splendid tribute to the generosity and public spirit of certain citizens of Norwich, who together contributed the necessary funds.

The Hospital was formally opened with befitting ceremonies on October 4, 1893. It is conveniently situated on the Norwich Town road about one mile and a half north from the center of the city, and may be reached by electric cars which pass the grounds. The property includes eighteen acres and extends from the street on the east to the high bank of the Yantic river on the west.

All the buildings are of pressed brick with light stone trimmings. The main or administration building contains the offices, operating and accident rooms and rooms for private patients. Two long enclosed corridors, one above the other, extend towards the west, and connect on the south side with two wings of two stories each, which contain the general wards for men and women respectively. The two wings stand at a goodly distance apart and except at the north ends where they adjoin the corridors, have the advantage of direct sun exposure and good natural circulation on all sides. An elevator run by water power and large enough to contain an invalid's bed, is used for the service of the Hospital. The wards and private rooms together furnish accommodations for sixty-three patients.

Other buildings in the group are the nurses' home, a detached pavilion specially designed for patients suffering from infectious and contagious diseases, and a service building convenient to all departments and containing the laundry, kitchen, boiler equipment and servants' quarters. All of these may be reached by covered passage ways without exposure to the open air.

All departments are comfortably and thoroughly appointed, and no pains have been spared in furnishing the institution throughout with the most improved styles of heating, ventilating and sanitary appliances. The operating room in particular is distinguished for the superior excellence of its appointments. The floors and walls are of polished white marble, and the table, stands and other fittings are either of glass or iron work finished in white. Every detail in its construction has been scientifically planned with a view to making its antiseptic conditions as nearly perfect as possible.

The medical department consists of two resident physicians and a visiting staff composed of twelve city physicians and surgeons, two of whom serve in turn for a period of two months. The force is further strengthened by the addition of a consulting physician and surgeon and of an ophthalmic and aural specialist.

The number of patients under treatment in the Hospital during the year ending September 30, 1895, was two hundred and fifty who represented twenty-nine different towns in Connecticut and towns in six other States. The average cost per week for each patient was $17.95. This high average is caused, in spite of careful management, by the large fixed expenses necessary in running such an extensive establishment for a comparatively small number of patients. As the ordinary charge per week for paying patients in the wards is only $7.00, a large annual deficit has to be made good from the funds of the corporation. Support and treatment were given in charity during the year, divided between one hundred and fifty-five patients. Since August 1, 1895, the Hospital has been in receipt of an annual appropriation of $5,000 from the State.

An Out-Patient Department was opened on February 15, 1895, and between that date and September 30 furnished free treatment to 89 poor patients whose condition did not require constant confinement in the Hospital. The City Missionary of Norwich, who is appointed Advisor to the Hospital with regard to the Poor, is especially connected with this department.

A training school for nurses is carried on in connection with the Hospital. It is under the direction of the Matron, and provides for the usual two years' course of instruction with periodical examinations and final awarding of diplomas. During the year eight pupils were in attendance of whom four graduated from the school in December, 1895.

II. HOSPITALS NOT AIDED BY THE STATE.

THE DAY-KIMBALL HOSPITAL, PUTNAM.

Visited in September, 1895.

This Hospital completed its second year of business on February 22, 1895, and the liberal patronage of its temporary quarters at that time on Bolles Street, clearly proved the need of such an institution in the place. Forty-six patients were admitted duringthe year ending June 1, 1895, among whom only four deaths were recorded. Soon after the opening of the Hospital a generous gift for a building fund was received from Mrs. Susan Kimball, of Boston, and the institution was named in memory of her son, the Day-Kimball Hospital.

An attractive site for the new building was selected on the Pomfret Street road about one mile northwest from the center of Putnam. . The grounds comprise about four and three-quarters acres and command extensive views of the surrounding country. A substantial three story structure of wood, admirably adapted for the purpose, was erected and appropriately dedicated in November, 1895. It contains a reception room, operating and etherizing rooms, a ward and private rooms for patients and rooms for the matron and nurses. Many of the rooms are furnished with open fireplaces and the whole building is heated by steam and lighted by electricity. It affords accommodations for about twenty patients and cost, exclusive of the site, about eight thousand dollars. An appropriation of $5,000, made by the General Assembly of 1895 on condition that $10,000 were raised from other sources, assisted materially in obtaining the new grounds and building.

An association of ladies in Putnam and vicinity has rendered the Hospital valuable aid with gifts of funds and useful articles, and has supported the only free bed that it contains.

THE STAMFORD HOSPITAL, STAMFORD.

MRS. J. E. NOTTINGHAM, *Matron.*

Visited in February and December, 1896.

The Stamford Hospital is the latest addition to the list of public hospitals in the State. A charter was granted to the incorporators by the General Assembly of 1893 which voted, also, an appropriation of $25,000 to aid in establishing the Hospital on the condition that $75,000 should be obtained from other sources. This amount was readily subscribed by a number of wealthy and generous citizens, and a desirable piece of property, consisting of a large private residence surrounded by twenty-two acres of land, was purchased for the purpose. It is located on East Main Street, about one mile from the center of the city, and may be reached by the Myrtle Avenue line of electric cars which pass the grounds.

The building was thoroughly renovated and equipped with all features suitable for its new uses, and provides total accommodations for thirty patients. There are pleasant wards for men and women and a well-lighted operating room completely furnished with modern apparatus of antiseptic properties. A number of attractive rooms are provided for private patients, several of which are arranged in suites with bath-rooms attached. The building is heated throughout with hot water and lighted by gas, and is connected with the city's system of water and sewers.

The Hospital was opened for the reception of patients on April 7, 1896, and up to December 4th had cared for one hundred and ten cases. Fully one-half of these were charity patients, wholly or in part, the cost of whose support was met by the funds of the corporation. The ordinary price per week in the wards for paying patients is seven dollars.

A staff of four visiting physicians and surgeons is connected with the Hospital, who serve for periods of two months each in rotation. The treatment is allopathic in nature and it is reported that plans are under way for the organization of a homeopathic hospital in the near future. In view of the size of the city, it would seem that the care of its sick and injured could be more wisely and economically administered in a single institution.

THE SHELTERING ARMS,

NORWICH.

MISS H. E. DE LAUNCEY, *Matron.*

Visited in May, 1896.

This is a private, non-sectarian charity with accommodations for sixteen inmates, and is located near the Norwich Town road, a short distance from the Backus Hospital. It is supported by individual contributions, and is managed by members of the United Workers' Society in the interest of the poor people of Norwich who require hospital care and treatment. Incurable cases are not received.

Patients who can do so pay something towards their expenses, usually about one-half of the required amount. The Hospital has been in successful operation for eighteen years.

ST. JOHN'S HOSPITAL AND HOME,

STAMFORD.

MISS M. C. MOORE, *Matron.*

Visited in February, 1896.

This institution is maintained in connection with St. John's Protestant Episcopal Church and, until the opening of the new Stamford Hospital in April, 1896, was the only provision in the city for the care of the sick and injured. As such, its doors were open to all without regard to creed or nationality and a work of great usefulness was performed. During the year ending November 1st, 1895, one hundred and twenty-three cases were under treatment, this unusually large number being due to an epidemic of typhoid fever which prevailed at that time.

The Hospital is pleasantly located in the end house of a large wooden block on Pacific Street, about one-third of a mile south from the railway station, and may be reached by the Summer Street line of electric cars which pass the door. It has accommodations for ten patients in the hospital department and is attended by a staff of six visiting physicians who serve in rotation for a period of two months each.

The charge for treatment is determined by the Trustees, who are authorized to make special terms according to the merits of the case and the accommodations required.

Since the opening of the new and more extensive public hospital, St. John's Hospital and Home is now left free to carry out the original purposes of its establishment, which include the temporary care of destitute children, the care of the aged and infirm and the care of sick people, connected with the Episcopal Church in Stamford.

The Trustees of the Home have purchased a building lot on the opposite side of the same street, adjoining a small chapel which also belongs to St. John's Church, and have begun the collection of a fund which, it is hoped, will enable them to erect in the near future a building especially designed for the use of the Home.

THE EMERGENCY HOSPITAL,

BRIDGEPORT.

MR. J. N. BRENNAN, *Superintendent.*

Visited in September, 1895.

The Hospital is located in the central part of the city on Middle Street, in the large brick building of the Board of Public Charities of Bridgeport, and is under the direction of one division of that Board. The location is a good one and is especially convenient for sufferers from accidents or injuries on the railroad.

A well-equipped ambulance service is maintained ready for use at a moment's notice and here victims of accidents from any cause whatsoever may be brought directly and treated. Serious cases are afterward transferred to the Bridgeport Hospital or to their homes as the case may be. The Hospital contains an operating room equipped with all appliances for ordinary cases and a comfortable ward which can be enlarged to meet any reasonable demands. A staff of four city physicians is retained in the Hospital service and makes visits at stated hours.

There is also a dispensary, under the charge of an apothecary, from which medicines are supplied to the sick and needy poor.

The records of the Hospital for the last fiscal year show that the ambulance was called out two hundred and eighty-six times, that one thousand and thirty-one cases were treated and that three thousand, nine hundred and thirty-five prescriptions were filled.

The whole cost of maintaining the Hospital is borne by the city.

THE EMERGENCY HOSPITAL,

DANBURY.

DR. BROWNELL, *Physician in Charge.*

Visited in January, 1896.

The Emergency Hospital of Danbury was opened in April, 1894, to serve as an adjunct to the Police Department of the city. A room in the City Hall on Main Street was set aside for the purpose and was furnished with the necessary appliances for the treatment of injuries from accidents and cases of sudden illness until they can be removed to the general Hospital. The city ambulance is kept at a neighboring stable and can be had at a moment's notice.

The Emergency room is under the direction of the Superintending police surgeon and during the year 1895 provided treatment in seventy-six cases.

DR. HILLS' PRIVATE HOSPITAL,

WILLIMANTIC.

Visited in September, 1895.

This is a small hospital connected with the practice and under the direction of Dr. T. Morton Hills, and is the only institution for hospital purposes maintained in Willimantic. It is located in a part of Dr. Hills' house, near the main street and the railroad, and is useful in cases of accidents. The majority of the cases received for treatment are surgical. Rooms for private patients are available but are seldom used. There were no inmates at the time of visit.

DR. VAIL'S PRIVATE HOSPITAL,

THOMPSONVILLE.

Dr. Vail's Hospital was established five years ago, and is intended for the treatment, by him as a specialist, of patients suffering from nervous affections, and for persons in need of rest and quiet. Insane patients are not received.

This Hospital has not been visited since the issue of the last Report.

PROVISION

FOR DISABLED VOLUNTEER SOLDIERS.

FITCH'S HOME FOR SOLDIERS, AND SOLDIERS' HOSPITAL OF CONNECTICUT,

NOROTON HEIGHTS.

CAPT. JAMES N. COE, *Superintendent.*

Under the management of the Soldiers' Hospital Board of Connecticut.

Visited in November, 1895, and in February and December, 1896.

The Home is favorably located on an elevated site a few rods west of the Noroton station, and commands an extensive view of the surrounding country and Long Island Sound. The institution had its origin in the generous gift by its founder, Mr. Fitch, of a plot of land and a building which he had set apart for the use of soldiers' orphans. The property was taken over by the State in 1887, and since that time has been conducted under State and National auspices as Fitch's Connecticut Home for Disabled Volunteer Soldiers and Sailors. By the aid of occasional appropriations additional lots of land have been bought, and buildings of such size and number erected, that from a small beginning it has assumed the proportions of a representative institution. The grounds now include a total of about twenty acres, the principal parts of which are laid out with walks, roads, shade trees and flowers, and present an inviting appearance of good order and tasteful arrangement.

The general disposition of the buildings is in the form of a hollow square. A large main edifice on the left contains the offices, dormitories, mess-rooms and commissary departments. Over against the main building and separated from it by a broad stretch of lawn, stand the chapel and hospital, which form the second side of the square. A small cottage dormitory, the laundry, carpenters' shop, and boiler house in the rear make up the third side. while the fourth is bounded by the public highway. In the center of the square a tall flag-staff from which daily float the national colors, and mounted cannon standing on either side, give an appropriate military aspect to the grounds.

DORMITORIES AND COMMISSARY DEPARTMENT.

The dormitories are arranged on the congregate plan, and although well-filled, are kept in a clean and orderly condition. A noticeable improvement made within the last year is the introduction of neat wooden wardrobes or lockers. one for each inmate, which provide convenient receptacles for the clothing and personal effects of the inmates. With the exception of the top story, each floor is supplied with a stand-pipe and one hundred feet of fire hose, in addition to a fire escape on the north side and three easy exits. Verandas are attached to each floor of the main building on the south side and add greatly to the comfort of the inmates during the summer months.

An important addition to the general accommodations of the Home, erected under an appropriation of $28,000 from the General Assembly of 1895, is a large two-story building of brick which was completed and first occupied on February 1, 1896. This is connected with the main building by a covered passage way and contains on the first floor a large dining-room with a comfortable seating capacity of 340, commodious kitchen and bake-shop equipped with modern fittings of the latest approved styles, and well-arranged store-rooms and cold-storage for the preservation of supplies. The upper floor comprises a large dormitory with bath-rooms and lavatory attached, barber-shop, shoe-shop and clothes-rooms. The erection of this new building has been followed by the conversion of the old dining-room into a comfortable dormitory and has increased the total capacity of the Home to accommodate four hundred and twenty-five inmates.

All the buildings of the Home are heated by steam and lighted by gasoline, and are provided with an excellent water supply and system of drainage. A thorough inspection of every department is made on Saturday of each week, and any error or omission in order or management is marked for correction. With the exception of hospital patients, each inmate is required to bathe weekly. Thirty-eight men are regularly employed in the carpenters' shop, kitchen, baking house and other departments where civilian labor would otherwise be required, and are paid in proportion to the quantity and worth of their labor. In connection with the daily routine, men are detailed in rotation for duty in the laundry, dining-rooms, etc., for which no compensation is given.

NEW AMUSEMENT HOUSE.

The building containing the amusement room and library has recently been moved to a more convenient and accessible location at the east end of the main building, and has been enlarged by the addition of a wing twenty by thirty feet in size. The inmates spend much of their time here and find it a comfortable place for reading, smoking and games. Magazines, daily and weekly newspapers (generously contributed), games of various kinds and a library of twelve hundred volumes are at hand for recreation and instruction. The amusement house is now connected with the main building by a covered piazza one hundred feet in length, which faces the south and is a welcome addition to the comfort of the disabled veterans.

THE HOSPITAL.

One of the most important departments of the institution is the hospital. The accommodation so far provided consists of two independent wards, of one story each, offices for medical staff and dispensary practice, and a sitting-room for convalescent patients, etc. The wards are fitted with modern appliances throughout, and are well lighted and ventilated.

In the natural course of events, as the years pass on, an increasing number of old soldiers become subjects for hospital treatment. The effect of this natural movement has already been felt at Noroton, where the hospital wards, with twenty-five beds in each, have proved to be unequal to the necessities of the case. Rooms which were not intended for service as wards are used for the overflow. A two-storied addition to the hospital, also, was erected in 1893 which contains on the first floor a well-equipped diet kitchen, and on the upper story, rooms of suitable size and furnishings which are reserved for such cases as require to be isolated.

MANAGEMENT.

The working of the Home is constantly in evidence. At the end of every ten days the Superintendent is required to hand in a report to the United States Government. Monthly visits are also made by the Executive Committee of the Soldiers' Hospital Board of Connecticut, who inspect the premises and audit the accounts. The institution is regularly inspected by a representative of the General Government who is a member of the Board of Managers of the National Home for Disabled Volunteer Soldiers, and it receives formal visits of the same kind from members of the Grand Army. The Woman's Auxiliary Corps appoint a succession of monthly visitors, who by charitable gifts and kindly acts, not strictly within the scope of government aid, have contributed in many ways to the comfort and cheer of the inmates. Religious services are held in the chapel on Sunday afternoons by local pastors.

An act of Congress authorizes the payment to any State of $100 per annum for each disabled volunteer soldier maintained in a Soldiers' Home on the condition that such homes shall be inspected and a report made by the Board of Managers for the information of Congress. The expense for support in excess of the Government allowance for the Connecticut Home is met by the State. The State appropriated:

For the year ending September 30, 1895	$70,000 00
For the year ending September 30, 1896	$60,000 00

The following statistics are for the years ending June 30, 1895 and 1896:

	1895	1896.
Total number admitted	214	230
Total number cared for	544	571
Average number present	278	332

A large proportion of the inmates are in receipt of pensions. The money is sent by check, enclosed in envelopes, which may be opened only by the persons to whom they are addressed.

Pensioners are required to file their certificates with the Superintendent on admission, and to make over to the Soldiers' Hospital Board the amount of each pension respectively, with the understanding that it is to be used for their own wants or for dependent relatives or friends.

	1895.	1896.
Number of pensioners present June 30	240	316
Number of pensioners present June 30, under act of June 27, 1890	160	235
Total amount of pensions received.	$31,343 18	$32,614 87
Total amount sent to dependents	$11,901 55	$15,133 78

Each inmate receives a copy of the rules and regulations for the government of the Home on admission. The Superintendent records violations of the rules and other offenses, and for repetition of the same has authority to warn and finally discharge the offender. The State furnishes a uniform which is worn so long as the person receiving it remains in the Home, and on his discharge is returned to the Superintendent.

All permits for admission to the Hospital or Home are issued by the Chairman of the Executive Committee, Soldiers' Hospital Board, Bridgeport, Connecticut, to whom all applications and communications should be addressed.

SOLDIERS' ORPHANS.

Under Chapter CCXXVII, Section 3648, of the General Statutes, it is ordered that there shall be paid from the State Treasury $1.50 per week for the benefit of each child of this State under the age of fourteen years who has no other adequate means of support, and is not in any poor-house, whose father served as a Connecticut soldier or enlisted from this State in the United States Navy in the war for the suppression of the rebellion, and died by reason of wounds received, or disease contracted while in such service.

The selectmen of each town and the treasurers of the New Haven and Hartford Orphan Asylums are required to return to the Comptroller, quarterly, a written list of the names and ages of all such children, and certify that they are entitled to the State bounty. Within ten days after the commencement of the quarter the Comptroller draws his order on the Treasurer for the amount payable for such children.

Returns of this sort are made from about twenty towns, and the amount paid by the State under the above statute was:

For the year ending September 30, 1895	$4,888 93
For the year ending September 30, 1896	4,417 31

THE COUNTY JAILS.

In connection with the County Jails the following statistics relating to their population are taken from the compilation made by the Secretary of State from the returns of the County Commissioners for the years ending June 30, 1894 and 1895:

From	Committed During the Year.		In Prison Before.	
	1894.	*1895.*	*1894.*	*1895.*
Hartford County	2,111	2,032	1,150	1,103
New Haven County	2,805	2,636	1,561	1,641
New London County	1,031	799	575	483
Fairfield County	1,963	1,842	1,106	1,051
Windham County	423	391	224	238
Litchfield County	228	275	88	110
Middlesex County	239	207	138	147
Tolland County	72	75	21	—
Total	8,872	8,257	4,863	4,773

For What Cause Committed.	1894.	1895.
Drunkenness	4,012	3,811
Breach of the Peace	928	893
Assault	559	579
Vagrancy and Tramping	567	520
Resisting Officer	130	103

The cost to the State for the board of prisoners in the County Jails was:

For the year ending September 30, 1895	$109,201 11
For the year ending September 30, 1896	119,072 87

THE HARTFORD COUNTY JAIL, HARTFORD.

MR. E. J. SMITH, *Sheriff;* MR. M. D. CONNORS, *Deputy Jailer.*
Visited in December, 1895, *and in April and October*, 1896.

	1894.	1895.
Number committed during the year ending June 30	2,111	2,032
Males	1,935	1,852
Females	176	180
Males under twenty-one years of age	151	121
Females under twenty-one years of age	23	10
Committed for drunkenness	921	955
In prison before	1,150	1,103
Discharged during the year	2,130	2,047
By expiration of sentence	1,291	1,163
By County Commissioners and State's Attorney	199	155

The Jail buildings are situated in a good sized lot occupying all but one corner of a block, on Seyms Street in the northern part of the city and may be reached by a short walk from the Main Street or Albany Avenue lines of street cars. A pleasant house for the Jailer stands at the center of the south front while entrance to the Jail is had at one side through the Jailer's office.

The Jail was built in 1873–4 and for over twenty years served the steadily increasing demands of the County upon its accommodations without alteration. For a number of years past, however, its overcrowded condition and lack of adequate facilities for work had been well known; with total of one hundred and sixty cells available for men, it became a daily question with the management how to provide for an average number of more than two hundred and fifty male prisoners. Their only resource was the pernicious "doubling-up" process of putting two and at times even three men in a single cell designed for one person. At last, however, decisive action to remedy this state of affairs was taken by the County legislators who met in December, 1895, and voted an appropriation of ninety thousand dollars for extensive additions and improvements to the Jail in all departments.

The original part of the Jail, which still remains unchanged, contains the main block of one hundred and thirty-six cells arranged in four tiers and substantially built of brick. A smaller block extending to the right contains twenty-four cells of somewhat larger size, arranged in three tiers, which are used exclusively for "bound-over" men. Straw mattresses, blankets, sheets, pillows and pillow-cases are provided for the beds, and ventilation is secured for each cell independently by a system of pipes which discharge into openings above the block. The corridors surrounding the block are well lighted and ventilated by series of long windows and openings in the outer walls.

The department for women is located in a wing on the west side of the main block and contains thirty-two cells available for their use. The hall about the cells receives an abundance of air and sunlight from windows in the southern wall. The women are under the charge of a matron and do the laundry work and mending and make the sheets and shirts that are used in the Jail.

Before the extensive enlargement of the Jail had been determined upon, an important improvement in the commissary department was commenced in the erection of a new kitchen, bakery and storehouse, which were completed and occupied in April, 1896. These are contained in a one-story brick wing, with basement, of fire-proof construction which stands in the angle between the main building and the women's wing, and opens into both by means of windows through which the rations are served. All departments are equipped with modern fittings and are vastly superior to the old quarters formerly provided for the purpose. The cooking is done entirely by men, and rations are served as follows: Breakfast: Beef or fish hash, bread and coffee; dinner, either bean soup, meat stew, corned beef or fish hash, with bread; supper, mush and milk or mush and molasses.

In the course of the general renovation of the Jail, the old kitchen in the basement under the women's department has been refitted as a laundry, which is provided with stationary tubs, steam driers and and other facilities sufficient to care for the large washings of the institution. The former apology for a laundry, also in the basement, has been transformed into a well-arranged bath room for the women's use and is furnished with convenient showers, tubs, etc. All departments of the Jail are now thoroughly drained by means of a new system of sewers.

The most important feature in the alteration of the Jail and one which will do much toward relieving its former overcrowded condition, is the addition of a substantial brick wing, extending one hundred and eight feet beyond the bound-over block in an easterly direction. Within this has been erected a block of one hundred and twenty steel cells arranged in four tiers on what is known as the "central corridor" plan. Under this system the cells are grouped about the sides of a central court, twenty-five feet in width, from which they are screened by walls and doors of solid steel, pierced only by peep-holes for the purpose of inspection. This court is well lighted and ventilated by a large sky-light in the roof, and furnishes a convenient place for the daily exercise of those prisoners who are not employed in the work-shop, while the solid steel walls prevent communication from one side to the other of the block. Galleries surround the court on all sides, providing easy access to the several tiers, and are heavily grated from top to bottom to prevent any possible falls. The block is further surrounded by an outer corridor on each tier from which the cells receive abundant light and air, and from which they are separated by heavy steel gratings. Each cell is provided with proper bedding and a bunk which hangs by chains from the wall and can be turned up when not in use. No plumbing whatever is introduced into the cells. This new block is connected by doors with the corridor of the main building, and together they provide a total capacity for the Jail of two hundred and eighty cells for the use of male prisoners.

Provision has been made for a new hospital, dispensary, isolated room for contagious diseases, etc., in the erection of another brick wing parallel to the one just described but sufficiently removed to insure an abundance of light and air. This is connected with the north end of the main block and, when completed, will furnish convenient quarters long-needed for this department.

The work-shop at the rear of the main block, has also received its share of improvement, and has been substantially enlarged by an addition at the west end, thirty-four by forty-four feet in size, so that it now provides accommodations for one hundred and seventy-five men to work in comfort. The industry carried on is cane-seating and manufacturing chairs under contract, and all the prisoners, with the exception of "bound-over" men and those who are ill or assigned to duty in other departments, are regularly employed. The working hours are from 7 A. M. till noon and from 1 to 5 P. M., and the amount received under the contract is $1,700.00 per annum.

Other improvements included in the general renovation are the erection of a new boiler-house in the west yard containing two steam boilers of sufficient capacity to heat the whole institution, and the refitting of the men's bath room with twelve new shower baths of modern sanitary design. Except in warm weather, when the period is shortened, the men are required to bathe once in two weeks, and a change of clean clothing is furnished weekly. It is expected in the near future to equip all of the prisoners with neat uniforms to be in keeping with the requirements of systematic discipline.

The chapel of the Jail is situated over the work-shop and is the only department that did not require alteration. It is a room of good size and presents a cheerful appearance. A partition separates the men in the body of the chapel from the women, who together with visitors, are seated in the rear. Religious services are held every Sunday by the chaplain.

When all the changes and improvements now in progress are completed, Hartford County will possess a Jail that may well bear comparison with any penal institution of the same class in the country.

NEW HAVEN COUNTY JAIL,

NEW HAVEN.

MR. C. R. SPIEGEL, *Sheriff;* MR. J. J. HART, *Deputy Jailer.*

Visited in November, 1895, and September, 1896.

	1894.	1895.
Number committed during the year ending June 30	2,805	2,636
Males	2,583	2,331
Females	222	305
Males under twenty-one years of age	165	130
Females under twenty-one years of age	10	13
Committed for drunkenness	1,544	1,460
In prison before	1,561	1,641
Discharged during the year	2,791	2,672
Discharged by expiration of sentence	1,646	1,696
Discharged by County Commissioners and State's Attorney	352	389

The Jail is situated in a large lot on Whalley Avenue in the northwestern part of the city and may be reached by a line of street cars which pass the premises. Near the center of the south front of the buildings is a comfortable house occupied by the Sheriff, while the entrance to the Jail is at one side through the Jailer's office. The main building was originally erected in 1857 and was subsequently changed and enlarged to meet increasing demands. It contains the main block of cells, one hundred and fifty in number, which are arranged in three tiers and are substantially built of brick. Light and air are received through long windows in the outer walls of the building, and in addition each cell is ventilated independently by a system of pipes which communicate with openings above the block. The cells are alike in size and are furnished uniformly, each with a bed which is supplied with a tick filled with straw, a pillow, pillow-case, blankets and one sheet.

This Jail, also, has suffered severely from over-crowding for a number of years past. With a total of one hundred and fifty cells available for men, the number of male prisoners has at times risen to three hundred and over, and recourse has necessarily been had to the objectionable practice of crowding two or even three men into a single cell. In the latter part of 1895, however, an appropriation was made by the County legislators for the purpose of enlarging the Jail, and some $80,000 have been expended in effecting much-needed changes.

One of the greatest of these has been the erection at the rear of the main building of a three-story structure of brick, one hundred and fifty-nine by sixty feet in size, which is devoted wholly to the uses of the workshop. The several floors provide convenient quarters for the manufacture of bent-wood chairs in its various departments, and furnish ample accommodations for the employment of more than two hundred men at the same time. The industry is carried on under contract with a local company, and the earnings of the prisoners, together with the proceeds from sales at the Jail, during the year ending June 30, 1895, amounted to $4,169.34. The working hours are from 7 A. M. to 12, and from 1 to 5:30 P. M., and all of the men, with the exception of those who are ill, assigned to other duty, or bound over for trial, are regularly employed in this department. A forty foot extension at the end of the building contains a new set of boilers which furnish power and heat for the workshop and also heat the new block of cells.

The interior of the old workshop, a two-storied brick structure situated just to the east of the main building, has been torn out, and within its walls has been built a new block of one hundred and two steel cells, arranged in three tiers. The cells are constructed on the usual plan, back to back, and are separated by a narrow passway which extends through the length of the block on each tier and permits inspection of the cells from the rear. A wide corridor surrounds the block and is sufficiently lighted and ventilated by windows in the outer walls.

The north end of this building is still divided into two stories as before, the upper one of which forms a large room for use as a chapel. Here services are conducted every Sunday by local religious organizations, and on alternate Sundays mass is said by a Roman Catholic priest. The space under the chapel may be occupied by another section of cells, one tier in height, when a further addition seems advisable.

An inclosed passage connects the new block with the main building, and the Jail office has been extended sufficiently toward the east to obtain direct communication with the new quarters. Shower baths of modern design have been provided in both the new and the old departments, and the plumbing of the Jail has been equipped throughout with sanitary fixtures. All the prisoners are required to bathe once a week and a change of clean clothing is provided weekly. The bedding and shirts belonging to the Jail are washed by the female prisoners, while men who possess under-garments of their own are expected to wash them every week in one of the bath-tubs. Clothing is furnished to a number of the prisoners who are in actual need, while others continue to wear the garments which they had at the time of arrival. As a measure of ultimate economy, however, it would seem desirable to equip all of the men with uniform clothing, and upon their discharge to return to them the apparel with which they entered the institution.

The women's department is located in a wing at the west side of the main building, and is under the charge of an efficient matron. It contains twenty-eight cells, arranged in two tiers, above which it is proposed to add another tier of fourteen steel cells in the course of the present improvements. Another change in this department is the addition of an abundant supply of bath tubs, shower baths, and toilet fixtures, accessible from each tier of cells. The women work in the kitchen and laundry, make the men's shirts and do the mending. These duties together with cleaning floors and windows, and other branches of housework keep them employed for a part of each day.

The Jail is not provided with a room specially arranged for hospital purposes, and in cases of illness patients are either treated in their cells or in two rooms originally intended for persons imprisoned for non-payment of debts.

There is no doubt that the extensive additions and alterations which have been undertaken will relieve, if not wholly, at least in a great measure, the serious condition of overcrowding that has been characteristic of the institution for so many years, and will make the New Haven Jail suitable, as it should be, for the uses of the most populous county in the State.

THE NEW LONDON COUNTY JAILS.

Two jails are maintained in New London County; one in Norwich and one in New London. The expense and inconvenience are proportionately greater under this arrangement, and it is admitted that it would be a benefit to the county and to all concerned if the differences arising from local interest and prejudice could be satisfactorily settled and the two Jails united into one institution.

The following statistics represent the returns from the two County Jails:

	1894.	1895.
Number committed during the year ending June 30	1,031	799
Males	882	737
Females	61	62
Males under twenty-one years of age	52	32
Females under twenty-one years of age	16	7
Committed for drunkenness	485	366
In prison before	575	483
Discharged during the year	938	780
Discharged by expiration of sentence	602	429
Discharged by County Commissioners and State's Attorney	17	34

THE NEW LONDON JAIL,

NEW LONDON.

MR. GEORGE O. JACKSON, *Sheriff;* MR. S. A. BROWN, *Deputy Jailer.*

Visited in January and September, 1896.

The New London Jail is situated at the corner of Franklin and High Streets, a short distance west from the center of the city. It consists of an old part, solidly built of stone in 1846, which contains fourteeen cells and a dungeon, and a new part built of brick in 1876, which contains the main block of forty-two cells arranged in three tiers. The wide corridor surrounding the block is well ventilated and lighted by long windows in the outer wall, and each cell is also ventilated separately by a system of pipes leading to the roof. The walls and ceilings of the cells are whitewashed, and the beds are provided with straw ticks, blankets, sheets and pillow-cases. It had not been customary, formerly, to furnish pillow-cases in the men's department, and their adoption merits approval, not only as a matter of cleanliness and comfort but also as a means of economy in preserving the pillows.

The building is heated by steam from a boiler in the old part of the Jail. There is no water closet but buckets are used in the cells both during the day and at night. A bath tub stands in the corridor at one end of the block which partially screens it from view, and the prisoners are required to bathe once in two weeks.

There is no steady work for the men but employment is given as opportunity offers in re-seating cane chairs, beating carpets and doing such other odd jobs as can be accomplished in the Jail yard. No land is connected with the Jail except the yard immediately surrounding the building, a portion of which is cultivated as a kitchen garden. Four or five men on an average are employed inside the building and from six to eight outside. On three Sundays in the month services are held in the Jail Chapel under the direction of various religious organizations of the city. The chapel room is also used for hospital purposes when necessity requires it.

The department for women is located on the north side of the building between the main block and the Jailer's house. It contains eight cells arranged in two tiers, and presented an appearance of commendable neatness and good order. The women prisoners are employed in the kitchen, and the food supplied to the inmates is wholesome and abundant. At the date of visit the number of prisoners was forty-one, thirty-nine being men and two women.

THE NORWICH JAIL,

NORWICH.

MR. D. J. CHAMPLIN, *Deputy Jailer.*

Visited in February and September, 1896.

The Norwich Jail is located on Jail Hill, so-called, an abrupt elevation not far from the center of the city. It was solidly built of stone in 1838 and retains in general its original form to the present day. The Jailer's house attached to the front of the building has been improved by the addition of a piazza since the last Report.

The main part of the Jail is used for male prisoners and contains a block of thirty-six cells which are arranged in two tiers and are surrounded by a corridor twelve feet wide paved with brick. Long windows in the outer walls and openings in the ceiling provide sufficient light and ventilation. The building is heated throughout by steam and is connected with the water and sewer systems of the city. A bath tub is situated at the end of the corridor and is screened from view by the main block. Here also, as at New London, there is no water-closet and buckets are used in the cells by day as well as by night.

The outer walls of the block and most of the interior brick work of the Jail are painted, as in this way they can be kept clean by washing at regular intervals. The inner walls of the cells are whitewashed and are done over once a month, or oftener, as occasion requires. The floors and baseboards are washed every week. The cells measure, in the interior, ten feet long, five feet wide and seven feet high and contain each a single bed furnished with a tick filled with straw, sheets, blankets, pillow and pillow-case, the last named article being an innovation of somewhat recent date.

At the date of visit in February, 1896, the number of prisoners was forty-two, all men. When the inmates outnumber the cells, additional accommodation is provided for them by using settees and cots as temporary beds in one side of the general corridor, and the practice of doubling-up the men in the cells is thus avoided. Under such circumstances, however, it is difficult to maintain effective discipline.

There is no workshop connected with the Jail and no means have yet been devised for keeping the men regularly employed at some useful industry. The corridor on one side of the block, however, has been furnished in a somewhat primitive fashion with a carpenter's bench, tailor's table, racks, etc., and here the men are occupied with such odd jobs as can be obtained from the towns-people. The ordinary occupations are mattress making, re-seating cane chairs and upholstering furniture. During the past year considerable work has been obtained from the mills in the vicinity of Norwich in the way of ''burring'' or removing imperfections from woolen cloth in the piece. Carpet beating is also carried on in the small yard which comprises all of the land connected with the Jail. The supply of work is not uniform and is not sufficient to keep more than a part of the men employed.

The combined kitchen and laundry adjoins the building on the west side, and overhead are situated the women's quarters which contain ten cells. These were clean and comfortable in appearance and supplied with proper sanitary conveniences. The women prisoners, whenever present, assist in the kitchen and laundry work. There is no hospital room in the Jail and prisoners who are seriously ill are removed to the city hospital.

The usual bill of fare is as follows: Breakfast, bread and coffee; dinner, either corned beef, beef stew, soup, beans, or fish, with bread and potatoes; supper, mush and milk or molasses. The various articles of food appeared wholesome and sufficient.

The city missionary, who, on three Sundays in the month, conducts religious services, visits the Jail often and makes a practice of helping discharged prisoners by securing employment for them when possible. His work in this direction has met with encouraging results.

THE FAIRFIELD COUNTY JAILS.

Fairfield County supports two Jails; the principal one being at Bridgeport and the other at Danbury.

The following statistics represent the returns from the two County Jails:

	1894.	1895.
Number committed during the year ending June 30	1,963	1,842
Males	1,735	1,629
Females	228	213
Males under twenty-one years of age	167	133
Females under twenty-one years of age	8	11
Committed for drunkenness	538	589
In prison before	1,106	1,051
Discharged during the year	1,941	1,868
Discharged by expiration of sentence	1,216	1,139
Discharged by County Commissioners and State's Attorney	190	201

THE BRIDGEPORT JAIL,

BRIDGEPORT.

MR. S. E. HAWLEY, *Sheriff;* MR. WM. SCOFIELD, *Deputy Jailer.*

Visited in September, 1895, and September, 1896.

The Bridgeport Jail is situated in a large lot at the corner of North and Fairmount Avenues in the northern part of the city, and may be easily reached from the North Avenue line of electric cars. It stands on high ground and receives an abundance of light and air from all sides.

The building is a substantial one of brick, and consists of an old part built some twenty years ago and a new part erected in 1890 of modern design and construction. The latter contains a massive steel cage which is built within and practically distinct from the brick walls surrounding it, and has a main floor and roof of steel and heavy gratings of steel bars that extend from top to bottom. The cage is divided into three tiers, each of which comprises two rows of thirteen cells facing outward. The flooring of each tier is extended to a width of five feet beyond the cells and is carried the whole length of the block, thus forming a secure promenade enclosure for each section of cells. The doors to the respective enclosures are always kept locked, but the doors of the cells are not locked during the day, and the ''bound-over'' prisoners are not required to work, and those who from sicknes or other good reasons are confined in their cells, are allowed the freedom of the promenade on their tier. The maximum number of prisoners who can be at large in one of the enclosures at any one time is thirteen. In this part each cell is provided with a closet, wash basin and running water, and is fitted with an independent system of ventilation. One room on each tier also is furnished as a bath-room, which in winter months is warmed and supplied with an abundance of hot water. Access to the several tiers is gained from a series of narrow galleries that surround the cage on all sides.

The women's department, which is also situated at this side of the Jail, has recently been enlarged by connecting it with one section of cells in the new part. This makes a total of thirty-two cells available for female prisoners, which will probably be sufficient to meet any ordinary demands upon its accommodations for several years. The women are under the charge of a matron, and assist in the kitchen and laundry work and do the mending for the institution.

The old part of the Jail extends directly back from the office and contains a substantial brick block of one hundred and eighteen cells arranged in three tiers. Each cell is ventilated independently by a system of pipes extending to the roof, and is furnished with an iron bed provided with a tick filled with straw, blankets, pillow and one sheet. The use of pillow-cases was heartily recommended, not only as a means of cleanliness and comfort but also as a measure of economy in preserving the pillows. New shower baths have recently been constructed at the end of the block and the men are required to bathe every week. The clothing of the prisoners is taken from them at the time of their arrival and is thoroughly fumigated in a cell reserved for that purpose. During the period of confinement, each prisoner wears plain but decent clothing belonging to the Jail, and when discharged, goes out clad in the same garments with which he entered the institution.

The workshop is a commodious brick building of two stories, forty by one hundred feet, and adjoins the end of the old part with which it is connected by a simple door-way. The first floor is used as a storeroom for materials, finished products, etc., while the upper floor forms the workshop proper. This receives an abundance of light and air from all sides and furnishes ample quarters for the employment of all of the prisoners, except the "bound-over" men and those who are detailed for other duty in and around the Jail. The industry carried on is cane-seating chairs under contract, which is governed by the results accomplished in a given time without regard to the number of men employed. For the year ending June 30, 1895, the earnings of the prisoners amounted to $900. The working hours are from 7 A. M. to 12, and from 12:30 to 5:30 P. M.

In feeding the prisoners the ordinary bill of fare is: Breakfast, meat or fish hash, bread and coffee; dinner, bread and potatoes with corned beef, beef-stew, soup or baked beans; supper, rice or mush with syrup, and bread and tea twice a week.

Two rooms situated over the Jailer's office may be utilized for hospital purposes when required, but are seldom so employed. All ordinary cases of illness are treated in the cells. Religious services are held in the chapel every Sunday from October 1st. to June 1st, and are conducted by delegations from various churches and organizations in the city.

All departments of the Jail give evidence of good order and discipline and appear to be under efficient managment.

THE DANBURY JAIL,

DANBURY.

MR. W. M. SCOTT, *Deputy Jailer.*

Visited in January, 1896.

The Jail is conveniently located on the main street near the center of the city. It is a medium sized building, the front of which is used by the Jailer as his private quarters. The Jail apartments are attached to the rear, and are enclosed on the street side by a board fence which extends above the windows. It has a total capacity of twenty-eight cells; twenty-two of which are for men, and six for women. The beds are provided with sheets and blankets and each man has his own towel.

Stoves are used for heating purposes, and for drying the men's clothing, which, when washed, is hung on lines in the corridor. The bath-tub and closet at the end of the block were not partitioned off in any way, and the use of a movable screen was recommended as a means of securing privacy at a little expense. Improvements in the sanitary arrangements have been made since the last Report by the introduction of new fixtures and by the connection of all departments with the city's system of sewers.

As this Jail stands in the relation of a dependency to the larger institution at Bridgeport, and is used, as a rule, for the detention of short-term men only, it has not been thought advisable to introduce a system of employment; it would also appear from the plan of the building that none was contemplated at the time of its erection.

Men who are committed by the Danbury Court are, in many cases, not detained long in the local Jail. The understanding is that when prisoners are sentenced for a period of thirty days or longer the Jailer shall notify the Sheriff, who will then direct the transfer of the men to the Bridgeport Jail, where they will thenceforth be regularly employed; the cost of transportation in such cases is willingly met by the party who has the work under contract.

The short-term men who serve out their sentences in Danbury spend their days in idleness, and either occupy their cells or sit in the halls and read. The bill of fare is wholesome, but is purposely not so hearty as it would be if the men were regularly employed. The daily menu is: Breakfast, hash, bread and coffee; dinner, bread and milk; supper, mush and milk.

The Jail is clean, and has the appearance of being well conducted. Religious services are held on alternate Sundays by members of the Women's Christian Temperance Union.

THE WINDHAM COUNTY JAIL,

BROOKLYN.

MR. C. B. POMEROY, *Sheriff;* MR. C. H. OSGOOD, *Deputy Jailer.*

Visited in May and October, 1896.

	1894.	1895.
Number committed during the year ending June 30	423	391
Males	415	389
Females	8	2
Males under twenty-one years of age	43	13
Females under twenty-one years of age	3	0
Committed for drunkenness	260	211
In prison before	224	238
Discharged during the year	413	402
Discharged by expiration of sentence	301	331
By County Commissioners and State's Attorney	9	13

The Jail is located at Brooklyn, six miles south from the Pomfret station on the N. Y. and N. E. R. R., and four miles west from Danielson on the Norwich division of the same railway. Brooklyn is the old county seat of Windham County, but for some years past the sessions of the courts have been held for the most part in the larger towns of Putnam and Windham.

The utter inadequacy of the old Jail to meet the necessary requirements, its unsuitable and unsanitary condition, and the advisability of its removal to one of the larger centers of population, have been matters of earnest discussion for several years. With a total capacity of thirty-six cells, it was compelled to shelter during the winter months an average number of more than one hundred inmates.

Decisive action was at last taken in the matter by the county legislators, who met in October, 1895, and voted an appropriation of $20,000 for the purpose of erecting a large addition to the Jail and of altering extensively the old building. Plans were prepared accordingly but it was soon found that any attempt to preserve the old structure was inexpedient, and that more funds would be required for the completion of the plans proposed. An additional sum of $5,000 was therefore appropriated, and it was decided to demolish the old Jail and to erect new buildings throughout. The work of construction was begun in May, 1896, and in the month of November it was found necessary to grant a further, and it is believed final, appropriation of $15,000, making a total of $40,000 required for the completion of a modern and well-equipped institution.

The new Jail, as erected, is substantially built of brick in a simple but pleasing style of architecture, and consists of a long main building extending north and south, and a smaller part extending east and west which connects the main building with the Jailer's house, This is the only part of the old Jail which is still preserved, and it will be thoroughly renovated to be in keeping with the new structures.

The main building consists of three divisions, of which the southernmost and largest contains the main block of sixty cells disposed in three tiers. The cells are solidly constructed of steel and are placed back to back, each tier being divided by a narrow passage which runs through the length of the block and permits the inspection of the cells from the rear by the officer in charge. Light and air are received from long windows in the outer walls, and each cell is further ventilated independently by a system of pipes which extend to the roof. Provision is made in the basement of the central division for a commodious laundry, while the upper floors are designed for use as hospital and chapel, respectively.

In the northern division is another block of thirty-six cells, also of steel and arranged in three tiers. One half of the uppermost tier is reserved for female prisoners, and is completely shut off from the rest of the block by solid walls and is provided with a separate entrance and staircase. Bath-rooms and lavatories are accessible from each tier in both divisions, and are so situated in tower-like annexes as to receive thorough ventilation distinct from that of the main building. Steam heat is supplied to all parts of the building.

The smaller part of the Jail contains a well arranged kitchen and bakery from which rations may be served conveniently to the inmates of both the north and south divisions. New offices for the Jailer and a room for the County Commissioners are also situated in this part, and on the upper floor are several large rooms designed for workshops, where the bedding and much of the clothing used in the Jail are manufactured by the inmates.

A considerable number of the prisoners have been employed in the construction of the new buildings, and, pending their completion, all hands have been housed in a small wooden structure on the premises under the constant watch of a guard. Although suffering from its crowded condition, it is gratifying to note that the general health of the inmates has been good and that no successful escapes have been accomplished. It is expected that the new buildings will be ready for occupancy in December.

Doubtless one of the influential factors in determining the retention of the Jail in Brooklyn was the efficient manner in which local opportunities have been availed of for keeping the men properly employed. No shop has been maintained for in-door labor, and no system of letting out work under a fixed contract, but the Jail is situated in an agricultural district and the farmers are often glad to obtain the assistance of extra men. Accordingly arrangements are made under which gangs of men are let out to engage in various kinds of farm work, or in digging and grading land; in spring and autumn they are regularly employed in repairing roads and bridges. During the winter months they cut ice, chop wood, blast rock, etc., and earn amounts which compare well with those of other seasons. For the year ending June 30, 1895, the earnings of the prisoners, together with the sales at the Jail, amonnted to $1,692.40, which assisted materially in defraying the cost of their support.

About fourteen acres of land are directly connected with the Jail, a considerable part of which is cultivated by the prisoners and furnishes vegetables and other farm produce for use in the institution. In the fall of 1895, the County obtained possession of a neighboring farm of two hundred acres, upon which it is expected that the men will hereafter be employed to a considerable extent. A model stable and barn have been erected on the Jail premises in the course of the recent improvements, and at the time of visit were sheltering five horses and seventeen head of cattle. These departments, together with a creamery which has recently been established, furnish additional opportunities for healthful employment.

In the erection of the new buildings the County is committed no doubt to the policy of maintaining the Jail in Brooklyn for many years to come; upon their completion it will possess a penal institution in every respect adequate and suitable to meet its requirements.

THE LITCHFIELD COUNTY JAIL,

LITCHFIELD.

MR. E. A. NELLIS, *Sheriff;* MR. J. M. BENTON, *Deputy Jailer.*

Visited in September, 1895, and April, 1896.

	1894.	1895.
Number committed during the year ending June 30.	228	275
Males	216	262
Females	12	13
Males under twenty-one years of age	31	30
Females under twenty-one years of age	3	1
Committed for drunkenness	82	102
In prison before	88	110
Discharged during the year	216	285
Discharged by expiration of sentence	106	142
By County Commissioners and State's Attorney	3	24

The Jail has an attractive situation in the center of the town at the corner of North and West Streets and is surrounded by a small but well-kept yard. It consists of a large dwelling-house, erected in 1811, in which the Jailer has his office and private quarters, and adjoining it in the rear the Jail buildings proper.

The second of these was erected in 1895 under an appropriation of $22,000 which was voted by the County legislators for the purpose of making an addition and extensive improvements to the Jail buildings. For years past it had been known that the old Jail was utterly inadequate and unfit to meet the demands upon its accommodations. With a total capacity of eighteen cells, it was at times necessary to shelter seventy or more prisoners, and provision was made for the overflow by crowding them into the upper rooms in the rear of the Jailer's house. Other conspicuous deficiencies in the old Jail were the want of suitable accommodations for women, and the absence of a well-appointed workshop.

All of these are now remedied, however, by the completion of the recent additions and alterations. The new building is a substantial brick structure of two stories, sixty-seven by thirty-nine feet in size, and contains the main block of twenty-eight cells, arranged in two tiers. The block is built of brick with a solid iron floor dividing the tiers. All of the cells are furnished with the regulation prison cots with proper coverings, and are provided with convenient receptacles for sanitary buckets having thorough ventilation to the roof. The hall surrounding the block is well lighted and ventilated by means of windows in the outer walls. In addition to the main block there are in each of two corners of the building two steel cages for the restraint of more desperate criminals, and at the other end a single dark cell for the purpose of solitary confinement. Two guard rooms command a view of both sides of the block, and at the south-east corner of the corridor opens a well-appointed bath-room.

The workshop occupies the whole of the upper floor of the main part, and receives good light and air from windows on the north and south sides. A convenient office for the superintendent is arranged in one corner, and the industry carried on is cane-seating chairs under contract with a Bridgeport agent.

An ell on the north side of the new part, thirty-six by twenty-two feet in size, contains in the basement the boilers which supply both the new and the old buildings with steam heat, and on the first floor well-arranged kitchen and pantries. On the second floor is a store-room in connection with the workshop for the storage of materials, finished product, etc., and also a good-sized room for use as a hospital for men. The new building is connected with the old Jail by means of an arched entrance which necessitated the removal of two of the old cells.

The improvements effected in the front part of the Jail include a thorough renovation of the upper rooms which will now be occupied by women prisoners, except when the crowded condition of the Jail necessitates their use for men. In such case the women, if any are present, will be transferred to a new room on the third floor of an ell which has been added to the north side of the house. This ell is of brick, thirty by fifteen feet in size, and contains also a new kitchen, pantries, etc., for the Jailer's household, besides several convenient store-rooms. Women prisoners are employed in the kitchen and laundry, and do the sewing and mending required in the institution.

A library of over three hundred volumes is available for the use of the inmates, and religious services are held in the Jail every Sunday. Neat uniforms have been adopted by the Jailer and his assistant, and all departments give evidence of careful and efficient management.

THE MIDDLESEX COUNTY JAIL,

HADDAM.

Mr. T. S. Brown, *Sheriff;* Mr. W. E. Odber, *Deputy Jailer.*

Visited in April, 1895, and April, 1896.

	1894.	1895.
Number committed during the year ending June 30	239	207
Males	231	198
Females	8	9
Males under twenty-one years of age	14	10
Females under twenty-one years of age	0	1

Committed for drunkenness	146	100
In prison before	138	147
Discharged during the year	237	208
Discharged by expiration of sentence	173	170
By County Commissioners and State's Attorney	12	13

The Jail is located at Haddam, on the Valley Division of the N. Y., N. H. and H. R. R., and stands facing the main street of the town on a hill back of the station. It is solidly built of granite and is provided with quarters on the north side for the use of the Jailer's family. A door in the Jailer's office leads directly into the Jail proper, which consists of a good-sized hall, with the majority of the cells ranged in two tiers on the north side. The main portion of the hall constitutes the old part and contains twenty single cells, whose interior dimensions are eight feet long, four and one-half feet wide and six and one-half feet high. An addition built on to the eastern end several years ago forms the new part, and contains ten cells, which are somewhat larger and are fitted in each case with accommodations for two inmates. The room is chiefly lighted and ventilated by a row of windows on the south side.

All of the cells are furnished with single beds provided with ticks filled with straw, pillows and blankets. At the date of the last visit there were no sheets and pillow-cases in evidence, and the suggestion made by the Board of Charities some two years ago that their use be adopted, had evidently never been put into effect. As a measure of cleanliness and common decency, their prompt introduction is strongly urged.

The building is supplied with a steam-heating apparatus, the pipes of which extend along the south wall of the corridor at a considerable elevation from the floor. It has not operated successfully, and a coal-burning stove in the northwest corner is depended upon as the mainstay for heating purposes. During the days in the winter months when there is no work offering, the men who are at large in the corridors draw wooden benches near the stove and sit huddled together around it. On the opposite side of the room is the bath-tub. A movable screen stands near by and can be readily adjusted so as to conceal the tub from public view.

The plumbing and general sanitary fixtures of the Jail are inadequate and ill-arranged; when last visited, little or no improvement appeared to have been made in this direction. As at the date of the Board's last Report, all the laundering for the inmates is done in the main corridor. No tubs are provided and there are no facilities for heating the water except the stove above mentioned. A kettle placed on the top of the stove is used for the purpose and the washing is done in the bath-tub; the garments are then hung on lines in the corridor to dry. The bath-tub discharges into an open drain and thence by a pipe through the wall to a tank outside. The drain is so shallow that it overflows, and keeps the floor wet and nasty in the neighborhood of the stove and tub.

The women's department is situated over the kitchen of the Jailer's house, and consists of four cells besides one dark cell for solitary confinement. No toilet facilities are provided and the women are compelled to perform their morning ablutions in the kitchen.

There is no workshop connected with the institution and the men are not regularly employed. They are engaged in cultivating the Jail farm during the season and in the spring and autumn do a part of the work upon the roads and bridges in the town, and are occasionally hired out by the day to the neighboring farmers. The net results are very small. During the year ending June 30, 1895 the amount received from the earnings of the prisoners, together with sales at the Jail, was only $210.00.

The food supplied to the prisoners is sufficient and of good quality, The ordinary bill-of-fare is: Breakfast, bread and coffee, with beans or hash; dinner, bread, vegetables and meat; supper, some variety of cereal food. Religious services are held in the Jail every Sunday afternoon by the clergyman of the town.

Harmonious relations have been maintained, so far as known, between the Jailer and the new Board of County Commissioners, and in view of this fact it is recommended that united action be taken at an early date to effect a thorough renovation of the Jail and an improvement in its general furnishings and sanitary conditions.

THE TOLLAND COUNTY JAIL,

TOLLAND.

MR. A. P. DICKINSON, *Sheriff;* MR. J. A. BROWN, *Deputy Jailer.*

Visited in February, 1896.

	1894.	1895.
Number committed during the year ending June 30	72	75
Males	70	72
Females	2	3
Males under twenty-one years of age	5	5
Females under twenty-one years of age	0	1
Committed for drunkenness	36	28
In prison before	21	—
Discharged during the year	76	70
Discharged by expiration of sentence	42	40
By County Commissioners and State's Attorney	10	8

The County Jail is inconveniently situated in Tolland and is reached from the nearest three railway stations by a drive of five miles from Rockville, of six miles from Vernon on the N. Y. and N. E. R. R., or of three miles from the Tolland station on the Central Vermont Railroad.

As it now stands the Jail is a small stone building and consists of an old part built in 1865, and a new part which was added four years ago; the former has two brick tiers, one above the other, of eight cells each, and the latter two iron tiers containing the same number, making thirty-two cells in all. The tiers are ranged along the north wall of the building, and open on to a wide corridor which is lighted by a series of windows facing the south and is ventilated by them and by openings in the ceiling. The floor of the corridor is about five feet below the level of the ground.

The cells measure in the old part eight feet long, six feet six inches high and four feet four inches wide; in the new part seven feet long, seven feet high and four feet eight inches wide. They contain single beds which are furnished with excelsior mattresses, sheets and blankets and pillows and pillow cases. The bath-tub at one end of the corridor, and the closet at the other are decently enclosed by wooden partitions. The men do their own washing, and have the use for this purpose of a row of stationary wash-tubs conveniently placed and supplied with hot and cold water. The clothes are hung on lines in the corridor to dry. At the time of visit a quantity of soiled bedding and a general litter of waste papers, etc., still remained in a number of unoccupied cells, and it was recommended that greater care be exercised in preserving conditions of neatness and cleanliness in the Jail quarters.

There is no workshop attached to the Jail; the men are not employed in any way, except in doing occasional odd jobs about the premises, and there are therefore in this instance no receipts from the earnings of prisoners. The ordinary bill of fare is: Breakfast, crackers and coffee with sugar and milk; dinner, meat and potatoes or meat stew, hash or beans with bread; supper, crackers and tea with sugar and milk.

The Jailer's residence is connected with the Jail, and is provided with telephone communication from Rockville. In the back part over the kitchen are located the women's quarters, consisting of two good-sized rooms with accommodations for four inmates. The rooms are heated by steam and are provided with a closet, but are not provided with a bath-tub. Adjoining the women's department is a large room which is designed for use as a hospital and seems well adapted for the purpose.

Although Tolland County Jail is the smallest one in the State it is the only Jail whose accommodations usually exceed the requirements.

HOMES

— FOR —

DEPENDENT AND NEGLECTED CHILDREN.

GENERAL STATUTES, 1888,

CHAPTER CCXXVIII

WITH SUBSEQUENT ACTS AND AMENDMENTS.

To Be Provided in Each County.

See P. A. 1895
Ch. 328, §3.

SECTION 3655. For the better protection of children between the ages of two and sixteen years, of the classes hereinafter described, to wit: waifs, strays, children in charge of overseers of the poor, children of prisoners, drunkards or paupers, and others who are or may hereafter be committed to hospitals, almshouses or workhouses, and all children within said ages, deserted, neglected, cruelly treated, or dependent, there shall be provided in each county one or more places of refuge, to be known as Temporary Homes. Said homes shall be distant not less than one-half mile from any penal or pauper institution; and no pauper or convict shall be permitted to live or labor therein; and they shall not be used as a permanent provision or residence for any child, but for its temporary protection, for so long a time only as shall be absolutely necessary for the placing of the child in a well-selected family home. Children demented, idiotic, or suffering from incurable or contagious diseases, are not included in the provisions of this chapter.

How Managed—Town Committees.

As amended
P. A. 1893,
Ch. 28.

SEC. 3656. In each county the County Commissioners thereof, with one member of the State Board of Charities and one member of the State Board of Health, shall constitute a board for the location, organization, management and general supervision of such temporary home or homes in the county. Said board may use, with their consent, orphan asylums now in operation in any county as temporary homes for that county; and the County Commissioners may lease, purchase, hold, sell and convey real and personal estate for the purposes of such temporary home or homes;

and the board may, when desirable for economical reasons, and when consistant with the welfare of the children to be provided for, establish such temporary homes in desirable private families; *provided*, that in no instance shall such home be under the same care or management as an almshouse, workhouse or penal institution. Said board may appoint such superintendents or agents, and may make such rules, regulations and by-laws as may be necessary or convenient for the order and government of the temporary home and its officers; and they shall appoint a committee of one man or woman in each town of the county, or more than one in accordance with the population and area of the town, who shall serve without compensation, and who shall have at all times the right to visit and inspect the home or homes of their county, and to suggest to said board such provisions, changes, or additions as they may think desirable; and shall assist said board in the careful selection of family homes for the children in the temporary home or homes, and in the visitation of children when placed in selected families; which visitation shall be made by said board, or by its agents, or through said committees, at least once in every three months; and said board shall remove any child from the family in which it may be placed to a temporary home or to another family, at their discretion, subject to the intents and purposes of this chapter.

Board of Management to Meet Once in Three Months.

P. A. 1895. Ch. 328.

SECTION 1. In each county the board for the management of temporary homes for dependent children shall meet at least once in each three months for the purpose of attending to the duties imposed upon it by law, and notice of such meetings shall be sent to each member by mail at least three days prior thereto by the chairman of said board.

Town Committees to Meet with Board of Management.

SEC. 2. At the meeting of said board held in each county in the fall months of each year, the town committees of the several towns in the county shall meet with said board for the purpose of suggesting such provisions, changes, and additions as they may think desirable in the temporary home, and assisting said board in the selection of family homes for the children in the temporary home, and advising said board of the results of their visitations of children when placed in family homes; and like notice of said meeting shall be given the town committees at least five days prior thereto by the chairman of said board.

Board to have Guardianship of Children until Eighteen Years.

SEC. 3. Said board in each county shall have full guardianship and control over each child committed to the temporary home for such county until such child shall have reached the age of eighteen years, or such guardianship and control shall have been legally transferred, or another guardian appointed by the probate court with the consent of said board;

and said board in each county shall have full power to place any child committed to the temporary home of the county at such employment, and cause the child to be instructed in such branches of useful knowledge as may be suited to the years and capacity of the child for such term of years not extending beyond the child's becoming eighteen years of age, as may be, in the judgment of said board, necessary to secure the welfare and future benefit of the child; and said board may give any such child, being an orphan or having been in charge of the county home for more than one year, in adoption in the same manner as any other legal guardian might do, and may at its discretion apply to the proper probate court for the appointment of a guardian of any such child. Said board may authorize the chairman or secretary to execute on behalf of the board any papers or instruments, or do any acts necessary or proper to the exercising of the powers herein given.

Parents Not Entitled to Earnings.

SEC. 4. Parents whose children have been supported by a temporary home for three years shall not be entitled to their earnings or services after they have become eighteen years of age.

State Board of Charities May Recommend Homes.

P. A. 1895, Ch. 298.

SEC. 1. The State Board of Charities may recommend to the boards for the management and supervision of the temporary homes in the several counties suitable family homes for the dependent and neglected children in charge of said temporary homes, and may visit any family home in which any such child has been placed by the county board in any county, or any place in which any such child has been placed at employment by any county board, to ascertain whether such child is properly treated and whether such home is a suitable one, having in view the welfare of the child.

To Report Ill Treatment.

SEC. 2. Whenever it shall be found that any such child is not properly treated in any family home or that any such home is not a suitable one and is of such character as to jeopardize the welfare of any child so placed therein, the State Board of Charities shall report the facts in the case to the county board which placed the child in such family home, and said county board, upon being satisfied of the ill treatment of the child, or the unsuitableness of the home, shall remove the child from such home and take such further action as shall be necessary to secure the welfare of the child.

May Delegate Duties to Secretary or Agent.

SEC. 3. The State Board of Charities may authorize its secretary or superintendent, or any agent appointed by it, to visit family homes in which dependent and neglected children in charge of temporary homes in the several counties may be placed, to recommend suitable family homes to the county boards, and perform such further duties in connection with the dependent and neglected children in charge of such temporary homes as said State Board of Charities may prescribe.

Children Not to be Placed or Retained in Almshouses—Expenses of Support, How Paid, Etc.

Sec. 3657. It shall be unlawful for overseers of the poor to place or retain children between the ages of two and sixteen years in almshouses after they shall have been notified by said board that a temporary home in their county is open for the reception of such children; and upon such notice they shall cause all such children in almshouses to be removed to such home: *provided*, that, if one of the parents of such children who is a person of good moral character shall be committed to the almshouse with and may there care for them, such children may remain with such parent in the almshouse for a period of not more than thirty days in any one year. The necessary expenses of supporting children in temporary homes, or in family homes until they shall reach the age of twelve years for girls and fourteen for boys, shall be paid by the town committing them to the temporary home, said town so paying having a right of action upon this statute for reimbursement from the towns to which said children, if paupers, would be legally chargeable, at not less than one dollar and fifty cents nor more than two dollars weekly per child; but nothing herein shall be construed as requiring payment for the support of children in private families when in the opinion of said board they may be placed by it in such families to its satisfaction, consistantly with the best interests of the child and with the provisions and purposes of this chapter, without such payment. Overseers of the poor may place children in the temporary home for their county upon such terms, as to the time of their stay therein, as may be agreed upon by them with said board. Said board may, in its discretion, permit children to be cared for in the temporary home at the expense of private persons. The placing of children with the lowest auction bidder is hereby prohibited.

Forfeiture for Neglect to Place Child in Temporary Home.

P. A. 1895, Ch. 313.

Any selectman, overseer of the poor, or town, placing or retaining any child between the ages of two and sixteen years in an almshouse, in violation of the provisions of section 3657 of the general statutes, shall forfeit fifty dollars for each month of such violation, to be recovered by information in the superior court by the state's attorney.

Children Under Two Years May be Placed in County Home.

P. A. 1895, Ch. 323.

Children less than two years of age may be placed by overseers of the poor in any county temporary home if its board of management shall consent to receive them, and the expense of their support shall be paid in accordance with section 3657 of the general statutes.

Vicious Children Not to be Committed to Jail, Almshouse, or Workhouse.

As amended P. A. 1889, Ch. 28.

See also P. A. 1895, Ch. 328, §3.

Sec. 3658. No court or justice of the peace shall commit any child under sixteen years of age as vicious, truant or incorrigible, to any jail, almshouse or workhouse. Any court of probate, the judge of any city or police court sitting in chambers, or any justice of the peace may, upon proceedings instituted in the manner provided for the commitment of children to the Industrial School or Connecticut School for Boys, or upon petition of the Connecticut Humane Society or the State Board of Charities, commit any child belonging to the class enumerated in Sec. 3655 to any temporary home that may have been established under this chapter until such child shall be sixteen years of age, unless sooner discharged by said board of management of temporary homes, and the costs of such commitment, and the expense of the support of such children after such commitment, shall be paid in the same manner as in other cases referred to in this section.

Certain Children Not to be Sent to Connecticut School for Boys or Industrial School Unless—

Sec. 3659. No child belonging to either of the classes specified in Sec. 3655 shall be sentenced or committed by any court or justice of the peace to the Connecticut School for Boys or the Connecticut Industrial School for Girls, unless such child is found to have committed an offense punishable by law, or is leading an idle, vagrant or vicious life, or the court or magistrate is of opinion that the child's previous circumstances and life have been such as to make it desirable that such child should be placed under the restraint, care, and guardianship of one of said schools.

Transfer of Children from School for Boys or Industrial School to County Homes.

Sec. 3660. The directors of either of said schools may at their discretion transfer any child belonging to either of the classes specified in Sec. 3655, sentenced or committed to such school, to the county home of the county from which such child was sentenced or committed, after reasonable notice to the board of managers thereof. The superintendent of such school shall immediately notify the comptroller of such transfer, and the expense of supporting the child in such home shall be paid by the State as provided in case of children committed to temporary homes by process of law.

Guardianship of Such Child Not Affected.

Sec. 3661. Such transfer shall not divest the school from which the child is transferred of its guardianship and control over such child, unless the same be relinquished by the board of directors of such school.

An Act Concerning Appeals from Commitment of Children to Public Institutions.—To what Courts Appeals May be Taken.

P. A. 1893, Ch. 122.

SEC. 1. Chapter CLXXI of the Public Acts of 1889 is hereby amended to read as follows: An appeal shall lie from any judgment, order or decree of a court of probate, judge of a city or police court, or justice of the peace committing any child to the Connecticut School for Boys, to the Connecticut Industrial School for Girls, or to any County Home for Dependent or Neglected Children, to the next criminal term of the Court of Common Pleas to be held within and for the county where such judgment is rendered, but in towns of which the District Court of Waterbury has appellate jurisdiction in criminal cases, such appeal shall be taken to the next criminal term of said district court, and in cases not in the jurisdiction of such Court of Common Pleas or District Court to the next criminal term of the Superior Court.

Who May Take Appeal.

SEC. 2. Such appeal may be taken by any parent or guardian of the child so committed, or by the selectmen of the town in which such judgment is rendered, within twenty days hereafter; and the appellant shall enter into a recognizance, with surety to the State; conditioned to answer to the complaint and abide the order and judgment of the court thereon.

Criminal Complaint Against to be Tried by Jury on Appeal.

SEC. 3. Complaints under sections 3628, 3641 and 3658 of the General Statutes shall, on appeal, be tried by a jury, and such child shall be produced in court during trial and to receive final judgment, by the appellant or by the person or persons having such child in their possession or control; and the jury shall render a verdict of guilty, or not guilty, or of proven or not proven, as the facts proved may warrant; and on a verdict of guilty or proven, sentence of commitment may follow as provided in said sections of the General Statutes.

Children May be Discharged or Transferred from Temporary Homes.

P. A. 1893, Ch. 255. As amended by P. A. 1895, Ch. 228.

SEC. 1. Any child committed to a temporary home by virtue of the provisions of Chapter CCXXVIII of the General Statutes, or transferred or committed to any suitable person or institution, by the provisions hereof, may, upon petition of the parents or guardian of such child to the board of managers, or the court of authority that made the commitment or transfer, be released and discharged from said temporary home, and from the authority of said board of managers, said persons, or institutions, to such parents or guardians, when it is shown upon inquiry had that the causes for which the commitment was made no longer exist, and said board, court or authority may transfer any child from such home to the keeping of any suitable person or institution upon the petition of the parents or guardian therefor, upon said board, court or authority being satisfied and assured, after due inquiry had that such transfer will be for the welfare and best interest of said child; *provided, however*, that the town which committed any child to the temporary home, or the town to which said child, if a pauper, would be legally chargeable, shall not be liable for the expense of supporting such child after such transfer; *and provided* that any child who has been or shall be transferred to a private institution shall cease to be a charge to the State or county; *and provided, further*, that said application or petition be made within a year from the date of the commitment of the child to the county home.

To Whom Children May be Committed.

SEC. 2. Commitments of children by virtue of the provisions of said chapter may be made by authority designated in said chapter, to any suitable person or institutions consenting thereto, designated by the parents or guardians of such children, upon being satisfied, after due inquiry made, that such a commitment will be for the welfare and best interest of such children; *provided, however*, that the town from which any child is committed under the provisions of this section, or the town to which said child, if a pauper, would be legally chargeable, or the State or the county shall not be liable for the expense of supporting such child by the person or institution, other than the county home, to which such child is committed.

Religious Instruction.

SEC. 3. Ministers of the gospel shall have free access to the several places of commitment and residence of children of their respective communions for the purpose of administering moral and religious instruction at such reasonable time as shall be designated by the board of managers of said temporary homes.

Children to be Subject to Authority of Board of Management.

SEC. 4. All children committed or transferred in accordance with the provisions hereof shall be subject to the authority and supervision of the board of managers of the temporary home of the county in which the commitment or transfer takes place, and said board of managers, or their agents, may visit said children in the several places of commitment provided therein, in the same manner and with the same authority as is provided in Section 3656 of the General Statutes, in reference to the visitation of selected families, and said managers may for good and sufficient cause remove temporarily to the temporary home of said county any child so committed or transferred until such cause is terminated; *provided*, that if said cause be not terminated within thirty days, then said managers may find private family homes for said children in accordance with the provisions of Chapter CCXXVIII of the General Statutes.

Religious Instruction.

SEC. 1. Equal privileges shall be granted to clergymen and parents of all religious denomination to impart religious instruction to the inmates of the temporary homes for dependent and neglected children, and every reasonable opportunity shall be allowed such clergymen and the parents of said inmates, to give to such inmates as belong to their respective denominations such religious and moral instruction as they may desire, and the boards of management of said temporary homes shall prescribe reasonable times and places when and where such instruction may be given.

P. A. 1893. Ch. 148.

County Tax for Support of Home—When to be Laid.

Sec. 3662. To provide for the expenses of temporary homes in excess of the sum received under Section 3657, said board shall present annually to the county representatives and resident senators of such county an estimate of the expense of such homes for the succeeding year; and said representatives and senators may, and in case sufficient funds are not already in the treasury for such maintenance shall, at their biennial meeting, or, in years in which no biennial meeting is held, at any special meeting duly called in such year, lay a county tax for the maintenance of such home or homes in their county.

Extra School Expense Incurred by Town or School District—How Paid.

Sec. 3663. The necessary extra expense incurred by any town or school district in providing school accommodations and instruction for the inmates of any temporary homes located therein shall be paid by the county as provided in the preceding section.

Audit and Approval of Such Expenses.

Sec. 3664. The board of managers of temporary homes in any county shall be the judge of what are necessary extra expenses, under the preceding section, for school accommodations and instruction for inmates of temporary homes located therein, and no such expense shall be allowed or collected of such county unless it shall have been incurred with the approval of such board of managers, nor until the account of the same shall have been audited and approved by such board.

AN ACT CONCERNING SCHOOLS IN COUNTY HOMES.

Enumeration of Children in County Homes.

SECTION 1. The children legally committed to county homes shall be enumerated in the districts in which said county homes are located, as provided in section 2224 of the general statutes, as amended by chapter XXVI of the public acts of 1889, but the enumerator shall make a sep-

P. A. 1895, Ch. 222.

arate list of the children in the county home, and certify said list to the school visitors of the town as provided in section 2225 of the general statutes, as amended by Chapter XXVI of the public acts of 1889.

County Commissioners May Establish Schools at County Homes.

SEC. 2. The county commissioners may establish schools at the county homes if in their opinion it is for the interest of the children. In case the county commissioners establish and maintain such a school in any county, the treasurer of the town in which the school is located shall pay to the county commissioners from the amount paid to the town by the comptroller that proportionate part which was derived from the enumeration of the children in the county home. Said commissioners shall apply the sum so named to the payment of the teacher, and to no other purpose. Said schools shall be open during the same days and hours and terms as the schools in the district in which the school is located, and the branches taught shall be those prescribed by the proper school officers for the schools of the town.

Concerning Teachers and School Visitors.

SEC. 3. The county commissioners may employ and pay as teachers of the schools at the county homes, persons found qualified as provided in this section, and shall provide books for the children and apparatus for teaching. It shall be the duty of the state board of education to examine the persons employed by the county commissioners, and if the candidates are found qualified in respect of character, education, and teaching ability, to give them certificates authorizing them to teach in said schools, and said board may revoke such certificate. and the county commissioners shall not employ any person who does not hold such certificate. The said board shall appoint an acting visitor or acting visitors who shall inspect and examine said schools at least twice in each term, and the county commissioners shall not pay any teacher nor maintain said school unless said acting visitor shall certify in writing that said school has been for each month kept in conformity to the laws relating to public schools.

Penalty for Removing Child from Temporary or Private Home.

Sec. 3665. Every person who shall remove or cause to be removed any child from a temporary home, or from a private home provided by the board of management of temporary homes, which child has been committed to a temporary home by a town or by any court, shall be fined not less than ten or more than thirty dollars, or imprisoned not more than twenty days, or both; *provided*, that children so committed may be withdrawn upon the authority of said board or of the selectmen so committing them.

THE COUNTY

TEMPORARY HOMES FOR CHILDREN.

Under the provisions of the foregoing statutes a Temporary Home for dependent and neglected children is maintained in each of the eight counties of the State. The law authorizing their establishment grew out of a movement whose object was to prevent the placing of children over two years of age in town almshouses, a concerted inquiry having previously demonstrated the fact that it was a common practice on the part of overseers of the poor to place dependent children in almshouses, and that large numbers of them, many of whom were between the ages of two and sixteen, were still under the influence of such objectionable surroundings.

The law was passed in January, 1883, and preparations were made to put its provisions into effect with as little delay as possible. One Home was opened on September 10, 1883; others followed suit at somewhat later dates, and by January 1, 1884, all had been established and were in active operation.

The original locations that were selected for the Homes have not been retained in a single instance. At the time of their organization the Homes were in the experimental stage of a new departure, and provisions in regard to amount of land, kind of buildings and points of location, etc., have since been determined by various causes.

Turning to them, now thirteen years since the date of their establishment, a brief account of their present situation and condition is given in detail as follows:

THE MIDDLESEX COUNTY HOME.

The Home was opened in Middletown on September 10, 1883; was moved to Higganum in April, 1884, and in November, 1886, to Haddam, its present location. The situation is a good one, being on a considerable elevation above the Connecticut River and on the main road of the town, about half a mile south from the Haddam station and only a few rods distant from the flag-station at Arnold's.

For the use of the Home a large wooden house of three stories was erected, which is comfortably appointed and has accommodations for from forty to fifty inmates. An isolated room is reserved for hospital purposes The Home has its own school-room attached but it is considerably too small for the purpose and should be enlarged at once.

An abundant supply of good water is piped into the house from a neighboring hill and the system of drainage into the river is effective. It is desirable, however, that the water main to the house should be replaced by one of larger size, which would permit the introduction of fire plugs and hose in the hallways as a means of protection in case of need.

Between four and five acres of land surround the Home, of which a portion is cultivated as a kitchen garden but the larger part is used solely as a recreation ground. On Sundays the children attend church and Sunday School in the town.

THE LITCHFIELD COUNTY HOME.

The Home was opened in New Milford on October 1, 1883. In April, 1884, it was removed to East Canaan, and on April 1, 1889, it was removed, on the invitation of the founder, to the Gilbert Home in Winsted.

Under this arrangement the county does not support an institution of its own as a Temporary Home. The county and Gilbert Home children occupy the same building, the county paying $1.50 per week to the Home trustees for the support of each child of the former class. A description of the Gilbert Home is given elsewhere in this Report under the heading of

Private Charities for Children, and a reference to it will show that the county is fortunate in having the privileges of so well equipped an institution available for its dependent children under such favorable conditions. The same regulations in regard to committing and placing out of county children apply here as in the other Temporary Homes. The inmates attend school on the premises.

THE HARTFORD COUNTY HOME.

The Hartford County Temporary Home was opened in Bloomfield on October 1, 1883; was afterwards moved to East Hartford, and again in 1889 to its present location at Warehouse Point. It is finely situated on a hill one mile east from the town of Windsor Locks, and one mile and a half south from Warehouse Point station. A large brick house, formerly used as a private residence, was remodeled to suit the Home's purposes. The grounds in front of the house are laid out in an ornamental manner, and those on the north and east are cultivated as a kitchen garden and orchard. Eleven acres of land are connected with the institution, which, together with the stock and outer premises, are under the charge of the Home's farmer.

To remedy its overcrowded condition a few year ago, a large brick addition, two stories in height, was erected in connection with the main house, and by careful arrangement can be made to accommodate eighty-five children. The dormitories, etc., are neat and attractive, but no provision is made for a playroom for girls in the building, and the desirability of furnishing some place for the purpose is heartily recommended. The boys' playroom in the basement, although well-lighted and aired, is a barren and cheerless apartment and should be made more attractive by the introduction of simple games.

The main house is now reserved for the use of the Superintendent's family, teachers, assistants, etc., with the exception of a large dining-room for the children and a room on the third floor which is used for hospital purposes when needed.

An important improvement in the facilities of the Home is the addition of a new and commodious school-house erected within the past year. It is a one-story brick structure, situated at a short distance from the main building, and contains two school-rooms having accommodations for fifty pupils each. The rooms are well-lighted and equipped with improved systems of heating and ventilation, and are further provided with convenient coat and toilet-rooms adjoining.

All departments of the Home appear to be under careful and efficient management.

THE WINDHAM COUNTY HOME.

The Home was opened at Putnam Heights on November 1, 1883, and was moved on November 1, 1886, to its present location in the town of Putnam; it stands on the public highway from Putnam to Thompson and is about two miles east from the Putnam station.

The buildings consist of a large house, a succession of outbuildings, and a large barn, the whole appearing more like a comfortable farming establishment than a county institution. A farm of sixty-five acres is attached, and is cultivated under the direction of the Superintendent. It is the custom here to make butter and to raise annually large supplies of vegetables for home consumption.

In 1895 an appropriation of $4,000 was made for the purpose of enlarging and altering the Home which was rapidly becoming overcrowded. A large dining-room and new dormitories were added to the main building, and a detached cottage was erected a short distance away for use as a hospital. This is an attractive wooden structure, two stories in height, and provides convenient quarters for the isolation and treatment of all severe or contagious diseases. The old dining-room in the main building was refitted as a comfortable play-room for the children.

The inmates of the Home attend the district school near by, and on Sundays attend service and Sunday School at a neighboring church.

THE TOLLAND COUNTY HOME.

The Home was opened in Andover on November 1, 1883, and was later moved to Vernon Center, where it has remained since. It has an unusually pleasant location on high ground facing the main road of the town about a mile and a quarter northeast from the Vernon station, and half a mile east from the Vernon Center depot which, however, is merely a flag station.

The house now occupied was formerly a tavern and, when bought by the county, was remodeled to suit its new purpose. A two-storied addition, twenty-four by thirty-three feet, was erected in 1895, and increases materially the capacity of the Home. Its first floor forms a large playroom for the use of all the children and the second floor a comfortable dormitory for boys. New bath-rooms and toilet facilities have also been added. All of the dormitories are furnished with white enamelled bedsteads and present a neat and attractive appearance. A large room on the third floor is used for hospital purposes when required. The building is heated by steam and an abundant supply of pure spring water is piped into the house.

About twelve acres of land are attached to the Home, a part of which is cultivated as a garden. Several head of stock are kept and the boys and girls enjoy practically all the best features of country life under healthful conditions.

The children attend the district school near by, and are present at Sunday services in the village church. The life of the Home is that of a large family and is characterized by features of homelike care and comfort.

THE FAIRFIELD COUNTY HOME.

The Home was opened in Stratford on January 1, 1884, and was later removed to Norwalk where it has a fine location on high ground a short distance removed from the street railway. The County erected a commodious brick building, especially designed for the purpose, at a cost of seventeen thousand dollars, and in 1892 it was opened for the reception of children. It is a well-built structure, unusually well lighted and ventilated, and contains all the needful comforts and conveniences. About four acres of land surround the house.

A new two-story brick building for school purposes was erected in 1895, corresponding in style with the main building and connected with it by a covered passway. Two large and well-arranged school-rooms are under the charge of efficient teachers.

With the addition of the new building the former school rooms were refitted as dormitories and thus increased the total capacity of the Home to accommodations for eighty children. Plans are under consideration for the erection in the near future of a detached cottage for use as a hospital.

THE NEW LONDON COUNTY HOME.

The Home was opened in Norwich on January 1, 1884, but shortly afterwards was moved into the town of Preston. It may be reached from Norwich by a Taftville electric car to Eighth Street, and a short walk thence across the river.

The house now occupied was formerly a private residence and although remodeled and enlarged at the time of purchase, still requires increased accommodations in the dining-room and kitchen. In 1894 a wing was added providing a school-room on the first floor and a dormitory for boys above. The dormitory is low between joints and is warmed by the heated air that rises through registers from the school-room below. The girls' dormitory is situated over the play-rooms. The Home can accommodate forty-five children comfortably or fifty when crowded.

The building is heated by steam and lighted by oil lamps. A fair supply of water is obtained from a well and a cistern and the drainage is conducted by pipes to the river. A few acres of land surround the house and are used chiefly as playgrounds for the children.

Within the past year a simple wooden building has been erected on the premises for use as a play house in stormy weather or in summer heat (since there are no trees on the place to furnish protection) and has been greatly enjoyed by the inmates of the Home.

THE NEW HAVEN COUNTY HOME.

The Home was opened in Tyler City on January 1, 1884, and on July 1, 1885, was moved to its present location in New Haven on the corner of Shelton Avenue and Bassett Street.

A line of electric cars runs past the place and makes this the most accessible of all the Homes.

The Home stands in a large lot which furnishes a good play-ground but on account of its location within the city limits, the place lacks many of the features of country life that children in the other Homes enjoy. In this instance, also, the Home was formerly a private residence, and was remodeled and enlarged to suit its purposes. The building is old, however, and has been so overcrowded for years past that it has been necessary to board out a number of children. With accommodations for but fifty-three inmates the number in charge of the Home has ranged from one hundred and twenty-five to one hundred and fifty or over.

In 1894 a lot measuring two hundred feet front by three hundred and seventy-five feet deep, and adjoining the Home grounds on the north side was purchased, and plans were afterward prepared for the erection of a new building. At about the close of the last fiscal year, however, it was decided by the Board of Management to make an effort to maintain the strictly temporary character of the Home by boarding out the children in selected family homes, not more than four being placed in any one family. By this means the number in the County Home is greatly reduced, and the Home becomes a mere receiving station to shelter the children only until they can be transferred to family homes. An effort is made to place them out as formerly without remuneration whenever possible, but where this cannot be arranged, they are boarded out as described above.

The erection of the new buildings has been postponed indefinitely, and the workings of the present system will be watched with interest.

THE WORKING ORGANIZATION OF THE COUNTY HOMES.

Boards of Management and Town Committees.

Each Home is under the charge of a Board of Management, which under the present law, consists of the County Commissioners, a member of the State Board of Health and a member of the State Board of Charities. This Board appoints the Superintendent and Matron, and also appoints committees of men or women in each town in the county, who serve without compensation, who have the right to visit and inspect the Home, make suggestions of changes and improvements to the Board, and whose duty it is to assist in the careful selection of family Homes, and in the visitation of children when placed out. The town committees appoint a Secretary, who corresponds with the other members in regard to the interests of children placed in families, etc., etc.

Under the provisions of an Act of 1895, the Board of Management has full guardianship and control of each child committed to the Temporary Home in that county until the child reaches the age of eighteen years, or until such guardianship is legally transferred; and the Board is further empowered in certain cases to give any child under its care in adoption in the same manner as any other legal guardian might do. It is provided, however, by an Act of 1893 that any child who has been committed to a Temporary Home may, upon the petition of its parents or guardians to the Board of Management or to the court that made the commitment, be released and discharged from the Home when it is shown that the causes for which the commitment was made no longer exist.

In placing children in family homes, the rule is that when strangers apply at the Home, they shall present a written recommendation from one or more of the town committees. If the application is granted the children are placed in the applicant's care, under the condition that until eighteen years old (unless sooner discharged by law) they will be at all times subject to the care and control of the Board of Management. The committee for the town to which the children go is then notified and is expected by visits and observation to keep a careful watch and to report to the Board any failure on the part of the family to care for the children in a satisfactory manner.

In the fall months an annual meeting is held at the Home of the members of the Board of Management, town committees and all others who are interested. A financial statement is presented, reports are given by the town committees of their visits and observations, and the details of the working of the Home for the past year are fully discussed.

TOWN AND STATE GUARDIANSHIP.

According to the statutes, neglected and dependent children may at any time be placed by the Selectmen of the town under the protecting care of the Home in that county, without the previous observance of formalities of any sort. The Home has a fixed charge of not less than $1.50 nor more than $2.00 per week for the support of each inmate. The Selectmen know the rate, and when they place a child in the institution it is fully understood that the town, through them, will be expected to pay for the child's board at the rate in question.

Children so placed are retained as wards of the town. Their temporary support is paid for by the town, and when the conditions which had called for their immediate care are replaced by those which admit of their return to home or friends, they may be removed by the town Selectmen with the same informality.

Under the same statute, Justices of the Peace, Judges of Probate orJudges of any city or police court may, by due process of law, formally commit children deserted, neglected or cruelly treated to any one of the Temporary Homes. The children then become wards of the State. Their temporary support is paid for by the State, and until they reach the age of eighteen years, the State expects that the Board of Management will satisfactorily perform its duties in behalf of State wards by temporarily protecting them for only so long a time as shall be absolutely necessary for the placing of the children in well selected family homes.

ERRORS IN COMMITMENT.

There is no question that in most cases the committals to the Homes have been made properly, and in the right understanding of the conditions in question, but at the same time mistakes have occurred, and with a view to reducing the percentage of such errors to the smallest limit, it is well to point out the desirability of holding a thorough investigation previous to taking the decisive step.

In certain cases children have been committed where less hasty action and an inquiry into the circumstances would have discovered near relatives or friends who would have been willing to take the children under their care.

It happens, too, as a matter of course, that now and again the propriety of certain commitments will be called into question, and it will be alleged with much force that the court's authority has been wrongfully and arbitrarily exercised. It is well understood that if children are really destitute and exposed to vicious influences, it is a duty to remove and protect them from such conditions, but in all cases too much stress cannot be laid upon the foundation principle that children should not be lightly removed and families broken up and parents permitted to shirk their responsibility if, consistently with the best interests of the children, it can be prevented.

Location of the County Temporary Homes.

HARTFORD COUNTY HOME,
Warehouse Point.

NEW HAVEN COUNTY HOME,
New Haven,
(Corner Shelton Avenue and Bassett Street).

NEW LONDON COUNTY HOME,
Preston,
(Near Norwich).

WINDHAM COUNTY HOME,
Putnam.

MIDDLESEX COUNTY HOME,
Haddam.

FAIRFIELD COUNTY HOME,
Norwalk.

LITCHFIELD COUNTY HOME,
Winsted.

TOLLAND COUNTY HOME,
Vernon Center.

STATISTICS OF CHILDREN

Received and Provided for During the Years Ending September 30, 1896 and 1895.

HARTFORD COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	96	80
Received during year ending September 30, (new cases)	39	76
Returned to Home during year ending September 30	49	
	184	156
Placed in family homes (new cases)	25	24
Replaced in family homes	28	
Returned to friends	15	29
Recalled by Selectmen	—	1
Given to priests	8	4
Sent to Industrial School	2	—
Sent to School for Boys	2	—
Died	1	2
Remaining in Home October 1	103	96
	184	156

NEW HAVEN COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	167	122
Received during year ending September 30 (new cases)	148	139
Returned to Home during year ending September 30	65	
	380	261
Placed in family homes (new cases)	52	36
Replaced in family homes	26	
Returned to friends	57	43
Recalled by Selectmen	3	—
Sent to Industrial School	2	3
Sent to School for Boys	7	10
Sent to St. Francis' Asylum	72	—
Died	4	2
Remaining in Home October 1	157	167
	380	261

NEW LONDON COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	50	38
Received during year ending September 30 (new cases)	33	78
Returned to Home during year ending September 30	6	
	89	116
Placed in family homes (new cases)	19	25
Replaced in family homes	3	
Returned to friends	24	37
Recalled by Selectmen	2	—
Given to priests	—	3
Sent to School for Boys	2	—
Sent to School for Deaf	—	1
Remaining in Home October 1	39	50
	89	116

FAIRFIELD COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	90	100
Received during year ending September 30 (new cases)	84	74
Returned to Home during year ending September 30	10	
	184	174
Placed in family homes (new cases)	24	29
Replaced in family homes	13	
Returned to friends	31	38
Recalled by Selectmen	2	1
Discharged by Board of Management	9	2
Given to priests	4	2
Sent to School for Boys	1	3
Sent to Lakeville School	1	—
Sent to Bridgeport Orphan Asylum	—	6
Died	3	3
Remaining in Home October 1	96	90
	184	174

WINDHAM COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	33	41
Received during year ending September 30 (new cases)	29	23
Returned to Home during year ending September 30	4	
	66	64

Placed in family homes (new cases)	15	12
Replaced in family homes	3	
Returned to friends	4	17
Recalled by Selectmen	—	2
Given to priests	1	—
Remaining in Home October 1	43	33
	66	64

LITCHFIELD COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	77	64
Received during year ending September 30 (new cases)	30	64
Returned to Home during year ending September 30	34	
	141	128
Placed in family homes (new cases)	22	39
Replaced in family homes	36	
Returned to friends	7	9
Recalled by Selectmen	1	—
Died	4	3
Remaining in Home October 1	71	77
	141	128

MIDDLESEX COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	40	40
Received during year ending September 30 (new cases)	21	20
Returned to Home during year ending September 30	11	
	72	60
Placed in family homes (new cases)	10	9
Replaced in family homes	6	
Returned to friends	3	6
Recalled by Selectmen	—	2
Died	1	3
Remaining in Home October 1	52	40
	72	60

TOLLAND COUNTY TEMPORARY HOME.

	1896.	1895.
Number in Home October 1, 1895 and 1894	41	33
Received during year ending September 30 (new cases)	5	27
Returned to Home during year ending September 30	5	
	51	60

Placed in family Homes (new cases)	2	9
Replaced in family homes	7	
Returned to friends	—	4
Recalled by Selectmen	2	2
Discharged by Board of Management	2	—
Sent to Industrial School	1	—
Sent to Institute for Blind	—	1
Died	—	3
Remaining in Home October 1	37	41
	51	60

SUMMARY OF STATISTICS FOR THE EIGHT COUNTY HOMES.

	YEAR ENDING Sept. 30, '96.	YEAR ENDING Sept. 30, '95.
Number in Homes, October 1, 1895 and 1894	594	518
Received (new cases)	389	501
Returned to County Home	184	
Total	1,167	1,019
Placed in family homes	169	183
Replaced in family homes	122	
Returned to friends	141	183
Sent to Protestant Asylums	0	6
Sent to Catholic Asylums	72	0
Given to priests	13	9
Sent to School for Boys	12	13
Sent to Industrial School	5	3
Sent to Lakeville School	1	0
Sent to School for Deaf	0	1
Sent to Institute for Blind	0	1
Discharged by Board of Management	11	2
Recalled by Selectmen	10	8
Died	13	16
Remaining in Homes, October 1	598	594
Total	1,167	1,019

Statistics from the Date of Opening, January 1, 1884, to September 30, 1896.

COUNTIES.	Received.	Placed in Family Homes.	Returned to Friends.	Given to Priests.	Sent to Protestant Asylums.	Sent to Catholic Asylums.	Sent to School for Boys.	Sent to Industrial School.	Sent to Lakeville School.	Sent to Blind Institute.	Sent to Schools for Deaf.	Recalled by Selectmen.	Died.	Remaining in County Homes.
Hartford, - - - -	813	367	288	86	—	—	6	5	1	—	2	5	9	103
New Haven, - - -	1,064	398	343	13	8	130	28	14	3	2	3	21	17	157
New London, - - -	437	181	180	10	5	—	5	—	5	—	1	17	4	39
Fairfield, - - - -	660	235	264	25	7	—	22	3	2	—	—	10	15	96
Windham, - - - -	248	123	66	1	—	—	—	—	1	—	—	14	3	43
Litchfield, - - - -	341	231	47	7	—	—	—	2	—	—	—	6	12	71
Middlesex, - - - -	258	114	91	—	—	—	2	1	—	—	1	4	5	52
Tolland, - - - -	195	106	24	11	—	—	3	2	—	2	—	5	8	37
Total, - - - -	4,016	1,755	1,303	153	20	130	66	27	12	4	7	82	73	598

Receipts and Expenses of County Homes.

The following is a brief statement of the receipts and expenses of the eight County Homes for the year ending June 30, 1896, as furnished by the County Commissioners, showing the relative amounts paid by the State and by the Towns for the support of their respective wards.

COUNTIES.	Received From the State.	Received From Towns.	Total.	Expenses.	Balance Due From County.
Hartford,	$ 9,831 08	$ 2 85	$ 9,833 93	$13,167 03	$ 3,359 86
New Haven,	17,857 28	438 54	18,295 82	23,401 42	5,105 60
New London	4,197 11	221 04	4,418 15	4,290 27	—
Fairfield,	† 7,940 74	744 56	8,685 30	11,833 75	2,500 00
Windham,	3,800 73	—	* 4,176 52	4,535 74	359 22
Litchfield,	4,956 59	1,303 63	6,260 22	6,153 33	—
Middlesex,	† 4,430 43	—	* 4,529 43	5,169 15	639 72
Tolland,	3,815 02	132 00	* 3,977 02	3,687 00	—
Total,	$56,828 98	$2,842 62	$60,176 39	$72,237 69	$11,964 40

*Included in this amount: Windham County, sales at the Home, $375.79; Middlesex County, sundry receipts, $99.00; Tolland County, sales at the Home, $30.00.

†Included in this amount: Fairfield County, School money through Town of Norwalk, $139.50; Middlesex County, School money through Town of Haddam, $164.25.

EXPENSE TO THE STATE.

The State has paid for the support of its wards in the eight County Homes:

For the year ending September 30, 1895	$51,327.26
For the year ending September 30, 1896	56,580.71

HARTFORD COUNTY TEMPORAY HOME.

BOARD OF MANAGEMENT.

Messrs. Edward W. Dewey, Granby,
Robert A. Potter, Bristol,
Fred. W. Dean, Glastonbury,
County Commissioners.

Dr. C. A. Lindsley, New Haven, of the State Board of Health; Miss Mary Hall, Hartford, of the State Board of Charities.

Secretary of Town Committees.

Miss Josephine M. Griswold . . . . .Hartford, Conn.

Towns.	Committees.	Post Office Addresses.
Hartford,	Mrs. John A. Crilly,	Hartford.
"	Mrs. John G. Parsons,	"
"	Miss Josephine M. Griswold,	"
"	Mrs. V. T. Smith,	"
Avon,	Mrs. Albert Andrews,	Avon.
Berlin,	Mrs. R. E. Ensign,	Berlin.
"	Mrs. A. A. Hart,	Kensington.
Bloomfield,	Mrs. E. R. Wood,	Bloomfield.
"	Mrs. Nathan Miller,	"
Bristol,	Mrs. E. F. Judson,	Bristol.
"	Mrs. R. A. Potter,	"
Burlington,	Mrs. Isaac Barnes,	Collinsville.
"	Miss A. C. Broadbent,	Unionville.
Canton,	Mrs. M. P. Dowd,	Collinsville.
East Granby,	Mrs. I. E. Clark,	East Granby.
"	Mrs. Clinton Phelps,	"
East Hartford,	Mrs. Wm. H. Brainard,	East Hartford.
East Windsor,	Mrs. H. O. Allen,	Broadbrook.
"	Mrs. John Middleton,	Melrose.
"	Mrs. James Price,	Warehouse Point.
"	Mrs. Charles Heath,	"
Enfield,	Mrs. Geo. T. Mathewson,	Enfield.
"	Mrs. J. P. Davis,	Thompsonville,
"	Mrs. J. C. Simpson,	"
"	Mrs. E. F. Parsons,	"
"	Mrs. John Twiss,	Shaker Station.
Farmington,	Mrs. J. C. Tracy,	Unionville.
"	Miss J. S. Porter,	Farmington.
Glastonbury,	Mrs. W. S. Goslee,	Glastonbury.
"	Mrs. F. W. Dean,	"

Glastonbury,	Mrs. D. H. Keene,	Glastonbury.
Granby,	Mrs. F. W. Colton,	Granby.
"	Miss K. E. Dewey,	North Granby.
Hartland,	Mrs. Hattie H. Gaylord,	West Hartland.
Manchester,	Mrs. Ellen Colver,	Manchester.
Marlborough,	Miss Ida Veasey,	Marlborough Mills.
New Britain,	Mrs. J. S. Stone,	New Britain.
"	Mr. A. S. Finch,	"
"	Mrs. A. H. Wiard,	"
Newington,	Mrs. E. A. Deming,	Newington.
"	Miss E. A. Root,	"
Plainville,	Mrs. J. B. Minor,	Plainville.
"	Mrs. D. W. Fox,	"
"	Dr. T. G. Wright,	"
Rocky Hill,	Mrs. L. A. Griswold,	Rocky Hill.
"	Mrs. F. A. Warner,	"
Simsbury,	Mrs. C. E. Stowe,	Simsbury.
Southington,	Mrs. Estelle Barnes,	Southington.
"	Mrs. F. H. McKenzie,	"
South Windsor,	Mrs. Roswell Grant,	South Windsor.
"	Mrs. Harvey Lindsley,	"
Suffield,	Mrs. M. G. Dibble,	Suffield.
West Hartford,	Mrs. W. E. Goodwin,	Elmwood.
Wethersfield,	Mrs. Clara T. Hanmer,	Wethersfield.
"	Miss Mary Harris,	"
Windsor,	Mrs. W. W. Loomis,	Windsor.
"	Mrs. R. O. Holcomb,	Poquonock.
Windsor Locks,	Mrs. J. H. Adams,	Windsor Locks.
"	Mrs. J. A. Whipple,	"

SUPERINTENDENT AND MATRON,

Mr. and Mrs. H. M. Adams . . . . Warehouse Point, Conn.

NEW HAVEN COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. ALBERT B. DUNHAM, Seymour, JOHN L. LINDLEY, Ansonia, JACOB D. WALTER, Cheshire,	*County Commissioners.*

Prof. W. H. Brewer, New Haven, of the State Board of Health; Miss Rebekah G. Bacon, New Haven, of the State Board of Charities.

SECRETARY OF TOWN COMMITTEES.

Mrs. G. F. Newcomb . . . . 90 York Square, New Haven.

TOWNS.	COMMITTEES.	POST OFFICE ADDRESSES.
New Haven,	Mrs. B. J. Lum,	19 Compton Street.
"	Mrs. G. W. Bacon,	32 High Street.
"	Miss M. D. Skinner,	144 College Street.
Waterbury,	Mrs. F. E. Castle,	Waterbury.
Ansonia,	——	——
Beacon Falls,	Mrs. Julius A. Hart,	Beacon Falls.
Bethany,	Mrs. Jerome A. Downs,	Bethany.
Branford,	——	——
Cheshire,	Mrs. Norman Platt,	Cheshire.
"	Mrs. Gillette,	"
Derby,	Mrs. A. B. Shaw,	Derby.
East Haven,	——	——
Guilford,	Mrs. E. O. Blatchley,	Guilford.
Hamden,	Miss Carolyn Dickerman,	Hamden.
Madison,	Miss Josephine Scranton,	Madison.
Meriden,	Mrs. Eli I. Merriman,	Meriden.
Middlebury,	Miss M. L. Townsend,	Middlebury.
Milford,	Mrs. D. Clark,	Milford.
"	Miss J. Beach,	"
Naugatuck,	Mrs. B. B. Tuttle,	Naugatuck.
"	Mrs. Geo. D. Buck,	"
North Branford,	Mrs. Nathan Harrison,	North Branford.
North Haven,	Mrs. P. B. Orcutt,	North Haven.
Orange,	Mrs. Stiles Woodruff,	Orange.
Oxford,	Mrs. S. P. Sanford,	Oxford.

Prospect,	Mrs. W. H. Phipps,	Prospect.
Seymour,	Mrs. A. T. Dunham,	Seymour,
Southbury,	Mrs. Merwin Mitchell,	South Britain.
Wallingford,	——	——
Wolcott,	Mrs. M. R. Carter,	Wolcott.
"	Mrs. I. R. T. Todd,	"
Woodbridge,	Mrs. LeRoy C. Beecher,	Woodbridge.

SUPERINTENDENT AND MATRON,

Mr. and Mrs. Willard Matthews. . . . . New Haven, Conn.

NEW LONDON COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. JOHN T. BATTEY, Groton,
GILBERT L. HEWITT, Norwich,
R. W. CHADWICK, Lyme,
} *County Commissioners.*

Dr. G. W. Wilson, Meriden, of the State Board of Health; Dr. A. W. Tracy, Meriden, of the State Board of Charities.

SECRETARY OF TOWN COMMITTEES.

Mrs. F. S. Camp . . . . Norwich, Conn.

TOWNS.	COMMITTEES.	POST OFFICE ADDRESSES.
New London,	Mrs. Frank Hawkins,	New London.
"	Mr. G. F. Tinker,	"
Norwich,	Mrs. F. S. Camp,	Norwich.
Bozrah,	Mrs. H. N. Houghton,	Bozrah.
Colchester,	Mrs. Geo. O. Jackson,	Colchester.
East Lyme,	Mrs. S. K. Luce,	Niantic.
Franklin,	Miss Ella Smith,	Franklin.
Griswold,	Mr. J. E. Leonard,	Jewett City.
Groton,	Miss Abby Clark,	Groton.
Lebanon,	Mrs. Julia Johnson,	Lebanon.
Ledyard,	Mr. Geo. Fanning,	Ledyard.
Lisbon,	Mrs. F. B. F. Reade,	Jewett City.
Lyme,	Mr. Frederick Fosdick,	North Lyme.
Montville,	Mrs. Chas. Johnson,	Norwich.
North Stonington,	Mrs. John Avery,	North Stonington.
Old Lyme,	Miss Angeline Champion,	Old Lyme.
Preston,	Mrs. Abby Shedd,	Preston.
"	Mrs. Chapman,	"
Salem,	Mrs. E. W. Merritt,	Salem.
Sprague,	Mrs. Ethan Allen,	Hanover.
Stonington,	Mrs. Nellie Trumbull,	Stonington.
Voluntown,	Mrs. E. Dewhurst,	Voluntown.
Waterford,	Mrs. John Payne,	Waterford.

MATRON,

Mrs. J. A. Brown . . . . Preston, Conn.

FAIRFIELD COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. WHITMAN S. MEAD, Greenwich,
JAMES E. MILLER, Redding,
HENRY LEE, Bridgeport,
} *County Commissioners.*

Dr. N. E. Wordin, Bridgeport, of the State Board of Health; Mr. Charles P. Kellogg, Waterbury, of the State Board of Charities.

SECRETARY OF TOWN COMMITTEES.

Miss Ella Merrill . . . . Norwalk, Conn.

TOWNS.	COMMITTEES.	POST OFFICE ADDRESSES.
Bridgeport,	Mrs. L. N. Middlebrook,	Bridgeport.
“	Mrs. F. A. Bartram,	538 Fairfield Avenue.
“	Mr. W. H. Bunnell,	132 Seaview Avenue.
Danbury,	Mrs. Mary L. Ward,	356 Main Street.
Bethel,	Mrs. Frank W. Smith,	Bethel.
Brookfield,	Miss Amelia J. Northrup,	Brookfield Center.
Darien,	——	——
Easton,	Miss A. F. Seeley,	Easton.
Fairfield,	Mrs. Samuel Glover,	Fairfield.
Greenwich,	Dr. L. P. Jones,	Greenwich.
Huntington,	——	——
Monroe,	Mrs. John G. Stevens,	Monroe.
New Canaan,	Miss Leonora I. Clark,	New Canaan.
New Fairfield,	Mrs. John J. Treadwell,	New Fairfield.
Newtown,	Mrs. E. L. Johnson,	Newtown.
Norwalk,	Mr. Charles Burr,	24 Center Avenue.
“	Miss G. H. Benedict,	South Norwalk.
Redding,	Mrs. A. A. Weed,	Danbury.
Ridgefield,	Mrs. L. W. Abbott,	Ridgefield.
Sherman,	Mrs. Maltby G. Gelston,	Sherman.
Stamford,	Mrs. Frank Phelps,	Stamford.
“	Miss Olivia Walsh,	“
Stratford,	Mrs. Rufus W. Bunnell,	Stratford.
Trumbull,	Miss Cora E. Beach,	Trumbull.
Weston,	Dr. Frank Gorham,	Lyons Plains.
Westport,	Mrs. William T. Wood,	Westport.
Wilton,	Miss Katharine A. Sturges,	Wilton.

MATRON,

Miss Dora G. Phelps . . . . Norwalk, Conn.

WINDHAM COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. DAVIS A. BAKER, Ashford,
E. H. HALL, Windham,
E. L. PALMER, Danielson,
County Commissioners.

Mr. George P. Ingersoll, New Haven, of the State Board of Health; Miss Rebekah G. Bacon, New Haven, of the State Board of Charities.

SECRETARY OF TOWN COMMITTEES.

Mrs. E. A. Whitmore . . . . Putnam, Conn.

TOWNS.	COMMITTEES.	POST OFFICE ADDRESSES.
Ashford,	Mrs. Davis A. Baker,	Ashford.
Brooklyn,	Mrs. C. A. Potter,	Brooklyn.
Canterbury,	Miss Olive D. Sanger,	Canterbury.
Chaplin,	Mrs. Merrick Barton,	Chaplin.
Eastford,	Mrs. Timothy J. Walker.	Eastford.
Hampton,	Mrs. Nellie C. Cleveland,	Hampton.
Killingly,	Miss Mary Dexter,	Danielsonville.
Plainfield,	Mrs. George Loring,	Central Village.
Pomfret,	Mrs. T. W. Williams,	Pomfret.
Putnam,	Mrs. E. A. Whitmore,	Putnam.
Scotland,	Mrs. Charles A. Brown,	Scotland.
Sterling,	Mrs. George C. Spooner,	Sterling.
Thompson,	Mrs. M. D. Eiliot,	Thompson.
Windham,	Miss Annie H. Tingley,	Willimantic.
Woodstock,	Mrs. F. L. Corbin,	Woodstock.

SUPERINTENDENT AND MATRON,

Mr. and Mrs. J. D. Converse . . . . Putnam, Conn.

LITCHFIELD COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. N. L. WEBSTER, Thomaston,
S. N. PETTIBONE, Bakerville,
D. E. Soule, New Milford,
County Commissioners.

Dr. R. S. Goodwin, Thomaston, of the State Board of Health; Miss Mary Hall, Hartford, of the State Board of Charities.

SECRETARY OF TOWN COMMITTEES.

Miss Mary P. Hinsdale . . . . West Winsted, Conn.

TOWNS.	COMMITTEES.	POST OFFICE ADDRESSES.
Litchfield,	Mrs. M. B. McLaughlin,	Litchfield.
“	Mrs. Geo. M. Woodruff,	“
“	Mrs. Dwight Kilborn,	East Litchfield.
“	Mrs. Amos Kilborn,	Milton.
Barkhamsted,	Mrs. E. J. Youngs,	Pleasant Valley.
“	Mrs. Wallace Case,	“
Bethlehem,	Mrs. William Harrison,	Bethlehem.
Bridgewater,	Mrs. C. H. Jessup,	Bridgewater.
“	Mrs. E. R. Wooster,	“
Canaan,	Mrs. E. E. Manley,	Falls Village.
“	Miss Delavan,	South Canaan.
Colebrook,	Miss Susan Whiting,	Colebrook.
“	Miss Sarah Carrington,	“
“	Miss Bass,	Robertsville.
Cornwall,	Mrs. Catharine Sedgwick,	Cornwall.
“	Mrs. T. S. Gold,	“
“	Miss Susie E. Harrison,	“
“	Mrs. S. N. Pettibone,	Bakerville.
“	Mrs. Victory Beers,	Cornwall Bridge.
Goshen,	Mrs. Delton Ostrem,	Goshen.
“	Mrs. Hibbard,	“
Harwinton,	Mrs. Abijah Catlin,	Harwinton.
“	Mrs. Martin Goodwin,	“
Kent,	Mrs. Randolph Frisbie,	Kent.
“	Mrs. Russell Eaton,	“
Morris,	Mrs. H. R. Stockbridge,	Morris.
“	Miss Louise Mason,	“
New Hartford,	Mrs. Geo. W. Bancroft,	New Hartford.

New Hartford,	Mrs. Walter Woodruff,	New Hartford.
New Milford,	Mrs. Dr. Bacon,	New Milford.
"	Mrs. Thompson,	"
"	Mrs. T. P. Marsh,	"
Norfolk,	Mrs. Alice E. Bridgeman,	Norfolk.
"	Mrs. Ralph J. Crissy,	"
North Canaan,	Mrs. A. G. Stevens,	Canaan.
"	Mrs. George Adam,	"
Plymouth,	Mrs. George Langdon,	Plymouth.
"	Mrs. Andrew Gaylord,	Terryville.
Roxbury,	Mrs. Leverett Castle,	Roxbury.
"	Mrs. L. I. Pons,	"
Salisbury,	Mrs. H. P. Harris,	Salisbury.
"	Miss Almira Cleveland,	"
Sharon,	Mrs. Dr. Knight,	Sharon,
"	Mrs. M. F. Whitney,	"
Thomaston,	Mrs. Wm. Simpkins,	Thomaston.
"	Mrs Chauncey Benedict,	"
Torrington,	Mrs. E. C. Hotchkiss,	Torrington.
"	Mrs. John Burr,	Burrville.
"	Miss Mary Brooker,	Torrington.
Warren,	——	——
Washington,	Mrs. Wm. G. Brinsmade,	Washington.
"	Mrs. Mary E. Kinney,	Romford.
Watertown,	Mrs. W. S. Munger,	Watertown.
"	Mrs. Merritt Heminway,	"
Winchester,	Miss Mary P. Hinsdale,	West Winsted.
"	Mrs. Caleb Camp,	"
Woodbury,	Mrs. James Huntington,	Woodbury.
"	Mrs. C. P. Crane,	"

SUPERINTENDENT AND MATRON,

Mr. and Mrs. Dwight S. Case . . . . Winsted, Conn.

MIDDLESEX COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. JOHN J. HUBBARD, Middletown,
WILLIAM H. SCOVILLE, East Haddam,
HENRY M. SNELL, Saybrook,
} *County Commissioners.*

Dr. G. W. Wilson, Meriden, of the State Board of Health; Mr. Geo. F. Spencer, Deep River, of the State Board of Charities.

SECRETARY OF TOWN COMMITTEES.

Mrs. J. H. Bunce. . . . . Middletown, Conn.

TOWNS.	COMMITTEES.	POST OFFICE ADDRESSES.
Middletown,	Mrs. Henry Ward,	Middletown.
"	Mrs. J. H. Bunce,	"
"	Mrs. M. W. Lawton,	"
"	Mrs. M. D. Murphy,	"
Haddam,	Mrs. G. A. Dickinson,	Haddam.
"	Miss Hannah M. Walkley,	Higganum.
Chatham,	Miss Adeline M. Tibbals,	Cobalt.
"	Mrs. Wm. H. Bevins,	East Hampton.
Chester,	Mrs. Joseph E. Silliman,	Chester.
"	Mrs. Merritt S. Brooks,	"
Clinton,	Mrs. George E. Elliot,	Clinton.
"	Miss Marietta Hull,	"
Cromwell,	Mrs. Harriett W. Wheelock,	Cromwell.
"	Mrs. A. N. Pierson,	"
Durham,	Mrs. Earl Mathewson,	Durham Center.
"	Miss Amelia Mathewson,	"
East Haddam,	Mrs. E. W. Chaffee,	Moodus.
"	Mrs. M. M. Gross,	East Haddam.
"	Mrs. F. W. Swan,	Millington.
Essex,	Mrs. Alfred M. Wright,	Centerbrook.
"	Mrs. C. H. Hubbard,	Essex.
Killingworth,	Mrs. Nathan H. Evarts,	Killingworth.
"	Mrs. Julius Buell,	"
Middlefield,	Miss Mary E. Lyman,	Middlefield.
"	Mrs. Henry S. Steele,	"
Old Saybrook,	Mrs. J. H. Grannis,	Saybrook.
"	Mrs. W. E. Clark,	"
Portland,	Mrs. E. L. Sears,	Portland.

Portland,	Mrs. Henry Kilby,	Portland.
"	Mrs. John Sage,	"
Saybrook,	Mrs. Milon Pratt,	Deep River.
"	Mrs. Lozelle J. Platt,	"
"	Mrs. J. B. Northrup,	Ivoryton.
Westbrook,	Mrs. C. C. Champlin,	Westbrook.
"	Mrs. Charles L. Clark,	"

SUPERINTENDENT AND MATRON,

Mr. and Mrs. J. H. Odber . . . . Haddam, Conn.

TOLLAND COUNTY TEMPORARY HOME.

BOARD OF MANAGEMENT.

Messrs. John H. Buell, Gilead,
J. W. Chandler, Stafford Springs,
W. D. Holman, Tolland,
County Commissioners.

Mr. T. H. McKenzie, C. E., Southington, of the State Board of Health;
Mr. H. C. Whittlesey, Middletown, of the State Board of Charities.

Secretary of Town Committees.

Mrs. E. C. Pinney . . . . Stafford, Conn.

Towns.	Committees.	Post Office Addresses.
Andover,	Mrs. Myron P. Yeomans,	Andover.
"	Mrs. Charles B. Stearns,	"
Bolton,	Mrs. C. M. Loomis,	Bolton.
"	Mrs. Orlando Sperry,	"
Columbia,	Mrs. Wm. H. Yeomans,	Columbia.
"	Mrs. Abbott Little,	"
Coventry,	Mrs. H. W. Mason,	South Coventry.
"	Mrs. H. R. Hoisington,	Coventry.
Ellington,	Mrs. James M. Talcott,	Ellington.
"	Mrs. Albert Pinney,	Vernon.
Hebron,	Mrs. J. H. Buell,	Gilead.
"	Mrs. N. E. Lord,	Hebron.
Mansfield,	Mrs. E. G. Sumner,	Mansfield Center.
"	Mrs. Bradley M. Sears,	Spring Hill.
"	Mrs. W. H. Gardiner,	"
Somers,	Mrs. H. M. Gager,	Somers.
"	Mrs. A. D. Noble,	"
Stafford,	Mrs. G. H. Baker,	Stafford Springs.
"	Mrs. M. P. J. Walker,	"
"	Mrs. E. C. Pinney,	Stafford.
Tolland,	Mrs. E. S. Agard,	Tolland.
"	Mrs. Wm. D. Holman,	"
Union,	Mrs. E. W. Upham,	Union.
Vernon,	Mrs. William Butler,	Rockville.
"	Mrs. Robert Walker,	Vernon.
"	Mrs. W. H. Prescott,	Rockville.
"	Mrs. J. S. Thrall,	"
Willington,	Mrs. C. T. Preston,	Willington.

Superintendent and Matron,

Mr. and Mrs. E. S. Talbot . . . . Vernon Center, Conn.

PROVISION FOR THE POOR.

ALMSHOUSE FOR STATE PAUPERS, TARIFFVILLE.

Visited in December, 1895, and February, 1896.

Connecticut owns neither a State Almshouse nor a State Farm. It has had a comparatively small number of State paupers to support, and it has been, therefore, the custom for the Comptroller's office to contract with some individual for their support. The contract has been placed for a number of years with the late Mr. Marvin Sanford of Tariffville, and was last renewed on August 1, 1894, for a period of three years. Since the death of Mr. Sanford the paupers are under the charge of his brother, Mr. Morton Sanford, who will continue to care for them until the expiration of the present contract.

The house reserved for the use of the paupers is situated on a hillside at a short distance from the railway station, and is under the management of a matron and a man who live near the premises. It is an old-fashioned wooden building, two stories high, with basement and garret, and, aside from incidental repairs, has suffered no improvement from its original condition. The ceilings are low, the halls narrow and dark, and the stairways steep, and all show the effects of years of continuous service. There is none of the conveniences and sanitary appliances of modern houses, and no special provision for the care of the sick and the insane.

Men and women occupy separate portions of the house, but meet in a common dining-room in the basement for meals. The rooms in the basement and first story are heated by stoves, while those above receive whatever warm air rises from the rooms below.

The water supply consists of a spring of pure water which enters the house by a pipe in the basement, but, owing to the lack of pressure, is not carried to the upper stories. There is no provision made for protection against fire. On the opposite side of the yard is a small outbuilding, heated by a stove, which serves as a bath room and laundry. A brook runs underneath and the refuse water is emptied into it through a trap-door in the floor. The women wash in the house and the men in the outbuilding, and once a week all are required to bathe in the tub. A room has been partitioned off at one end of this building for the use during the daytime of a number of men who are unfit by their natures and habits to associate with the other inmates. At night these men sleep upon beds of straw in a room in the basement of the main house.

With the exception of a few cases of the unfortunate poor, the majority of the inmates represent low types and may be classified in general as tramps, victims of drink or persons affected with loathsome diseases. Some, too, are ugly in disposition and will not yield to ordinary discipline, while others are idiotic or insane and are unable to care for their persons decently. About one-half only of the men can be made to work and these are employed upon the farm or the large woodpile that stands at one end of the yard. The number of inmates when visited was thirty-one, of whom nine were insane or demented.

By the terms of the contract $2.75 per week is paid for the board of each person. The total cost to the State was:

For the year ending September 30, 1895	$4,544 64
For the year ending September 30, 1896	4,371 38

In addition to the State paupers, at the date of visit the town poor of Avon and Barkhamsted were cared for under contract, and a few paupers were boarded from other towns, namely: Bloomfield, West Hartford, Windsor Locks, West Haven, North Canaan, and two from Meriden.

GENERAL STATUTES, 1888.

Support by the State.

Section 3311. All persons needing relief, who have no settlement in any town in this State, shall, when needing relief, be provided for by the Comptroller, for the period of six months next after they come into this State and no longer, etc.

Sec. 3316. The Comptroller may from time to time, contract with any person for not more than five years, for the relief and support of State paupers, and may remove any State pauper from any town, and place him with such contractor, adjust any demands arising under such contract, and draw orders on the State Treasurer for the payment thereof.

TOWN ALMSHOUSES.

There are 168 towns in Connecticut, of which 70 have almshouses owned by the town and 19 others maintain almshouses which are owned by private individuals.

The approximate almshouse population in the State in 1896 is shown in the following table:

Hartford County	400
New Haven County	550
New London County	175
Fairfield County	300
Windham County	105
Litchfield County	75
Middlesex County	75
Tolland County	70

Total, 1,750, of whom 290 are insane.

GENERAL STATUTES, 1888.

SUPPORT BY TOWNS.

Section 3295. All persons who have not estate sufficient for their support and have no relations of sufficient ability who are obliged by law to support them, shall be provided for and supported at the expense of the town where they belong; and every town shall maintain and support all the poor inhabitants belonging to it, whether residing in it or in any other town in the State.

Sec. 3296. It shall be unlawful for any town, or the selectmen or agent thereof, to make any contract for the support of any person liable to be supported by such town. All persons supported by any town shall be supported in an almshouse or other place or places provided by such town, etc.

Sec. 3303. Paupers shall be liable to be removed to such places as the Selectmen may lawfully designate, to be supported as the town or Selectmen may direct, etc.

Sec. 3310. All paupers shall be supported at some place or places within the town to which they belong, and it shall not be lawful for any town, or the Selectmen thereof, to remove any pauper out of the town to which such pauper belongs to be supported in any other town.

HARTFORD COUNTY.

There are twenty-nine towns in Hartford County, of which sixteen have almshouses owned by the town, and two contain almshouses owned by private individuals. Visits have been made to the towns mentioned in the appended list, and reports on the condition of the poor are presented as follows:

HARTFORD.

Visited by Miss Hall in September, 1895.

Almshouse is owned by town. About 100 acres of land are attached.

Keeper, Mr. C. L. Packard, whose contract expires April 1st.

Terms, $1,500 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 229; 136 men, 90 women, 3 children.

Number of feeble-minded, 15; 7 men, 8 women.

Number able to work, 50; 20 men, 30 women.

Occupations, farming, carpentering and housework.

The almshouse is clean, food excellent in quantity and quality, and the inmates appear contented and happy.

BERLIN.

Visited by Miss Hall in September, 1896.

Almshouse is owned by town. About 75 acres of land are attached.

Keeper, Mr. Alonzo Sweet, whose contract expires April 1, 1897.

Terms, $40.00 per month, not including out-door relief.

Prisoners are received.

There were no inmates at the date of visit. A small building on the premises furnishes accommodations for tramps, and there is also a lock-up where prisoners are kept for a short time before trial. The town pays one man six dollars per month and boards him.

BRISTOL.

Visited by Miss Bacon in September, 1895; by Miss Hall and Mr. Kellogg in January, 1896; and by Mr. Kellogg in March, 1896.

Almshouse is not owned by town; managed by private parties and is situated about two miles east from the railway station.

Keepers, Mr. and Mrs. Chauncey N. Atwood, whose contract expires in October.

Terms, $2.50 per week for each inmate.

Prisoners are not received.

Number of inmates at date of visit, 10; 8 men, 2 women.

Number of insane, 2 women, of whom one has been in the State Hospital.

Number of feeble-minded, 2 men.

Number able to work, 2; 1 man, 1 woman.

Occupations, housework and work around the premises.

The women room in the keeper's house, and one sick woman was found in an upper room that was bitterly cold and lacked sufficient and proper bedding. The men occupy a rough wooden building in the rear. All of the beds were dirty and not made-up at the noon hour, and a general air of untidiness prevailed. Complaints were made by the inmates in regard to the food. An interview was had with the Selectmen concerning the needs of the place, and at the last visit its condition was found to be somewhat improved.

CANTON.

Visited by Miss Hall in October, 1895.

Almshouse is not owned by town; the keeper has added ten rooms to his house which he leases to the town for $200.00 per year.

Keeper, Mr. Lewis DeWitt Dowd, whose contract expires in January.

Terms, $600.00 a year, not including out-door relief.

Prisoners are not received.

The only inmate at the date of visit was an insane woman who had been in the State Hospital but is still able to do some forms of housework. The usual number of inmates is from six to eight, and about fifty others outside are assisted by the town. The almshouse is well kept, and the rooms and beds were found in good condition.

EAST HARTFORD.

Visited by Miss Hall in October, 1895.

Almshouse is owned by the town; about 19 acres of land are attached.

Keeper, Mr. John Ruoff, whose contract expires in April.

Terms, $400.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates, 7 men.

Number insane, 1 man, who had been in the State Hospital for fourteen years.

The inmates are able to do little work, but the house appeared to be well kept. Tramps are given lodgings here, and during the winter months from three to eight are housed every night.

EAST WINDSOR.

Visited by Miss Hall in September, 1896.

Almshouse is owned by town; about 75 acres of land are attached.

Keepers, Mr. and Mrs. W. J. Maine, whose contract expires April 1, 1897.

Terms, $400.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 7; 3 men, 4 women.

Number of feeble-minded, 2; 1 man, 1 woman.

Number able to work, 3; 1 man, 2 women.

Occupations, farm work and housework.

The house is kept in excellent condition and the inmates seemed contented. Lodging is furnished to a large number of tramps during the winter months.

ENFIELD.

Visited by Miss Hall in September, 1896.

Almshouse is owned by town; about 100 acres of land are attached.

Keeper, Mr. Merrick Lamphere, whose contract expires in October.

Terms, $450.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 12; 8 men, 4 women.

Number who have been in State Hospital for Insane, 3; 2 men, 1 woman.

Number able to work, 5; 3 men, 2 women.

Occupations are housework and gardening.

The almshouse was built by the town expressly for the purpose and, together with barns and outbuildings, was found newly painted and in good condition. The inmates receive excellent care and the management is humane and efficient.

GLASTONBURY.

Visited by Miss Hall in September, 1895.

Almshouse is owned by town.

Keeper, Mr. William Hurlburt, whose contract expires April 1.

Terms, $300.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 6; 2 men, 4 women.

Number of feeble-minded, 1 woman.

Some assistance is rendered by the inmates in the departments of housework and work on the farm. The house is neatly kept and the food is good. All of the rooms are not warmed, however, and the sexes are not separated as completely as is desirable.

MARLBOROUGH.

Visited by Miss Hall in September, 1895 and September, 1896.

The town has no almshouse. The board of one insane woman is paid in a private family, and rent and provisions are furnished to two other persons in their home. A letter was sent to the first Selectman of the town, urging that the insane woman be transferred to the State Hospital.

NEW BRITAIN.

Visited by Miss Hall in February, 1896.

Almshouse is owned by town; about 53 acres of land are attached.
Keeper, Mr. Martin Brooks, whose contract expires July 1.
Terms, $700.00 a year, not including out-door relief.
Prisoners are not received.
Number of inmates at date of visit, 44; 25 men, 19 women.
Number of insane, 9; 5 men, 4 women, all of whom have been in the State Hospital.
Number of feeble-minded, 9; 6 men, 3 women.
Number able to work, 19; 13 men, 6 women.
Occupations are farm work, housework and sewing.

The inmates seemed contented and well-treated. The sleeping-rooms of the men, however, were very cold, there being no heat in the hallways. One insane woman, Mary Desmond, should be transferred to the State Hospital at Middletown.

SIMSBURY.

Visited by Miss Hall in February, 1896.

Almshouse is owned by town; about 150 acres of land are attached.
Keeper, Mr. Wesley Case, whose contract expires April 1.
Terms, $420.00 a year, not including out-door relief.
Prisoners are not received.
Number of inmates at date of visit, 5; 2 men, 3 women.
Number of insane, 1 woman.
Number of feeble-minded, 2 women.

Number able to work, 1 woman, who assists in the housework.

The house was in fair condition, and the beds were clean and comfortable. The sitting-rooms were in good order and well warmed, but the sleeping-rooms were exceedingly cold.

SOUTHINGTON.

Visited by Dr. Tracy in July, 1895, and by Miss Hall in January, 1896.

Almshouse is owned by town; about 97 acres of land are attached.

Keepers, Mr. and Mrs. Thomas S. Case, whose contract expires April 1.

Terms, $500.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 12; 5 men, 7 women.

Number of insane, 1 woman, who has been in the State Hospital.

Number of feeble-minded, 1 woman.

Number able to work, 8; 3 men, 5 women.

Occupations, farm work and housework.

The house was clean and comfortable, and the inmates had no complaints to make.

SOUTH WINDSOR.

Visited by Miss Hall in September, 1896.

Almshouse is owned by town; about 18 acres of land are attached.

Keeper, Mr. W. E. Richardson, whose contract expires April 1, 1897.

Terms, $500.00 a year, not including out-door relief.

Number of inmates at date of visit, 4; 3 men, 1 woman.

Number able to work, 1 man.

The house is comfortable, the food sufficient and of good quality, and the inmates appeared contented. A tramp house, separate from the main building, shelters a considerable number of inmates during the winter months.

SUFFIELD.

Visited by Miss Hall in September, 1896.

Almshouse is owned by town; about 80 acres of land are attached.

Keeper, Mr. A. E. Belden, whose contract expires April 1, 1897.

Terms, $500.00 a year, out-door relief not included.

Prisoners are not received.

Number of inmates at date of visit, 3; 2 men, 1 woman.

Numer of insane, 1 woman.

The house is well kept and the inmates receive kindly treatment. Only a few tramps are entertained.

WINDSOR LOCKS.

Visited by Miss Hall in September, 1895.

The town has no almshouse. One woman is boarded at Tariffville, and two men and two women are supported in private families. Four persons are maintained at the State Hospital for the Insane, and two women are cared for at the Hartford Hospital. Out-door relief is furnished during a part of the year to fifteen persons, and from fifteen to twenty tramps on an average are sheltered every night in the winter months.

NEW HAVEN COUNTY.

There are twenty-six towns in New Haven County, of which eleven have almshouses owned by the town. Visits have been made to the towns mentioned in the appended list, and reports on the condition of the poor are presented as follows:

NEW HAVEN.

Visited by Miss Bacon in April, 1895, and by Miss Bacon and Mr. Kellogg in April, 1896.

Almshouse is owned by town, and is situated four miles west from the City Hall and one and a half miles from the Westville P. O. About 400 acres of land are attached, of which 50 acres are cultivated.

Keepers, Mr. and Mrs. John F. Gaffey, whose contract is renewed January 1st., annually.

Terms, $1,500.00, not including out-door relief.

Prisoners are not received.

Number of inmates at date of second visit, 335; 166 men, 154 women, and 15 children all under two years of age.

Number of insane, 60; 30 men, 30 women, of whom 10 men and 10 women have been in the State Hospital.

Number of feeble-minded, 75; 35 men, 40 women.

Fifty-seven men are employed on the farm, about the premises and in the laundry. A considerable number of the women are engaged in housework, cooking, laundry work and sewing.

The house is beautifully situated on what is known as Springside Farm, and consists of a large brick building, three stories and attic in height, which was erected at a cost of $225,000. It is heated by steam, lighted by gasoline, and is connected with the city's systems of water and sewers. All departments are complete in their appointments and are kept in excellent order.

WATERBURY.

Visited by Mr. Kellogg in April, 1896.

Almshouse is owned by town, and is situated about two miles northwest from the City Hall, near the Watertown road; about 120 acres of land are attached.

Keepers, Mr. and Mrs. Thomas Moran, whose contract is renewed April 1, annually.

Terms, $800.00 a year, not including out-door relief.

Prisoners are received and are kept separate from the inmates in a division of fourteen cells over the kitchen.

Number of inmates at date of visit, 94; 54 men, 32 women, and 8 children, two of whom were over two years of age but were soon after removed.

Number of insane, 8; 1 man, 7 women, of whom the man and six of the women have been in the State Hospital.

Number of feeble-minded, 7; 4 men, 3 women.

Number able to work, 47; 30 men, 17 women. Eighteen men work on the farm and the town roads, while others are employed about the building and premises. The women are engaged in various departments of housework.

The house, which is a large brick structure of three stories, stands on high ground, and was first occupied in February, 1894. It is heated by steam, lighted by electricity, and provided with an abundant supply of water from a tank on the hill back of the house. The several floors contain pleasant rooms for elderly people and comfortable dormitories for the general body of inmates, men and women occupying separate wings of the building.

Sitting and reading-rooms are provided, as well as hospital wards and a chapel where occasional religious services are held. All necessary comforts and conveniences are furnished, and the whole establishment appears to be under careful and efficient management.

ANSONIA.

Visited by Miss Bacon in January and September, 1896.

Almshouse is owned by town; about 50 acres of land are attached.

Keeper, Mr. Peter Foy.
Terms, $700.00 a year, not including out-door relief.
Prisoners are not received.
Number of inmates at date of second visit, 9; 4 men, 5 women.
Number of feeble-minded, 1.

The house is pleasantly situated, the rooms are well warmed, and the comfort of the inmates is carefully considered. All departments are in excellent condition and present an appearance of good management.

BRANFORD.

Visited by Miss Bacon in January, 1896.

Almshouse is owned by town.
Keeper, Mr. Larned Tuttle.
Terms, $2.50 a week for each inmate.
Number of inmates at date of visit, 8; 6 men, 2 women.

It was found that the sexes were not properly separated in this house, and that the general condition of the place and the inmates was discreditable to the town. A letter was sent by the Board to the first Selectman urging a general course of improvement, and the place will be kept on the list for early inspection.

CHESHIRE.

Visited by Miss Bacon in September, 1895, and by Miss Bacon and Mr. Kellogg in April, 1896.

Almshouse is owned by town and is situated one and a half miles northeast from the center; about 75 acres of land are attached.
Keepers, Mr. and Mrs. Frank Hotchkiss.
Terms, $600.00 a year, not including out-door relief.
Prisoners are not received.
Number of inmates at date of visit, 7; 5 men, 2 women.
All of the inmates are able to do some work, the men being employed upon the farm and the town roads, while the women are engaged in various forms of housework.

The house is clean and comfortable, and gives evidence of good management. Considerable trouble has been caused, however, by the intermittent lodging there of a boy about seven years of age, for whom permanent settlement should be made elsewhere. Tramps are cared for in a separate building, and between 200 and 300 were lodged and fed during the year.

GUILFORD.

Visited by Miss Bacon in January, 1896.

Almshouse is owned by town; a few acres, only, of land are attached.

Keeper, Mr. William Bowen.

Terms, $125.00 a year.

Number of inmates at date of visit, 2; 1 man, 1 woman.

The house is very old, but as there are so few occupants, they are made comfortable.

HAMDEN.

Visited by Miss Bacon in December, 1895.

Almshouse is owned by town; about 120 acres of land are attached.

Keeper, Mr. George B. Zorn.

Terms, $450.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 8; 5 men, 3 women.

Number of insane, 1 woman.

The place is clean and neat, and the inmates made no complaints. A noticeable deficiency, however, is a lack of adequate heating facilities for the men's department. Tramps are entertained upon the presentation of an order from the Selectmen.

MERIDEN.

Visited by Dr. Tracy in March, 1895.

Almshouse is owned by town; about 12 acres of land are attached.

Terms, $800.00 a year, not including out-door relief.

The place is comfortable and the inmates are kindly treated.

NAUGATUCK.

Visited by Miss Bacon in January, and Mr. Kellogg in March, 1896.

Almshouse is owned by town and is situated one and a half miles west of the center on the Millville road; about 200 acres of land are attached.

Keepers, Mr. and Mrs. John Dooley, whose contract expires May 1, annually.

Terms, $800.00 a year, not including out-door relief.

Prisoners are received occasionally, and are kept separate from the other inmates.

Number of inmates at date of visit, 18; 11 men, 7 women.

Number of feeble-minded, 2 men.

Number able to work, 11; 4 men, 7 women. The men assist in work about the place and the women are employed in housework.

The building was formerly an old farm house, and in many ways is unfit for its present use. It is damp and is heated only by stoves. The floors are old and uneven and the wall paper needed repairs in several places. There is no means of heating the bath-room which appeared to be little used, and other toilet facilities, such as wash-sinks, are clearly inadequate. Children under two years of age were found present at the first visit, and a letter was sent to the town authorities urging their prompt removal, and the inauguration of improved conditions in the building and its furnishings.

OXFORD.

Visited by Miss Bacon in October, 1895.

Almshouse is owned by town.

Keeper, Mr. Frederick Hubbell.

Terms, $500.00 a year.

Prisoners are not received.

Number of inmates at date of visit, 3; 1 man, 2 women.

The keeper is allowed to board the paupers outside of the almshouse if he chooses, or to assist them in other places if it seems desirable.

PROSPECT.

Visited by Miss Bacon and Mr. Kellogg in April, 1896.

The town has no almshouse, and no paupers were receiving support at the date of visit.

WALLINGFORD.

Visited by Miss Bacon in October, 1894.

Almshouse is owned by town; about 20 acres of land are attached.
Keeper, Mr. A. H. Leonard.
Terms, $700.00 a year, not including out-door relief.
Prisoners are not received.
Number of inmates at date of visit, 6; 4 men, 2 women.
Number of insane, 1 woman who has been in the State Hospital.
Number able to work, 5; 4 men, 1 woman.

The house is kept in a clean and orderly condition, and the inmates appear contented and well cared for.

WOLCOTT.

Visited by Miss Bacon in October, 1895.

The town has no almshouse and no residents whom it wholly supports. Occasional assistance is rendered to a few persons.

WOODBRIDGE.

Visited by Miss Bacon in October, 1895.

The town has no almshouse, but boards its dependent poor in private families. Eight persons were so provided for at the date of visit. One patient is supported at the State Hospital for the Insane.

NEW LONDON COUNTY.

There are twenty-one towns in the county, of which eleven have almshouses owned by the town and three maintain almshouses owned by private individuals. The towns mentioned in the appended list have been visited, and reports on the condition of the poor are presented as follows:

NEW LONDON.

Visited by Mr. Kellogg in January, 1896.

Almshouse is owned by town, and is situated at corner of Garfield and Jefferson Avenues, three-fourths of a mile west from the City Hall. About 18 acres of land are attached.

Keepers, Mr. and Mrs. Charles H. Walden, whose contract is renewed January 1, annually.

Terms, $850.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 43; 26 men, 16 women, and 1 boy, four years of age, a cripple.

Number of insane, 10; 6 men, 4 women, all of whom have been in the State Hospital.

Number of feeble-minded, 19; 13 men, 6 women.

Number able to work, 8; 5 men, 3 women.

Occupations, farm work and housework.

The house is a three-storied structure of brick, with basement, and is connected with the city's system of water and sewers. The rooms are neat and comfortable, and are heated by hot water pipes.

During the winter the male inmates saw and split a large quantity of wood which is delivered by Mr. Walden to families in receipt of out-door relief, under the direction of the Charity Commissioners.

The food supplied to the inmates is of excellent quality, but it was learned that the practice is followed in the winter months of furnishing but two meals a day, breakfast at 8 a. m.

and dinner at 3 p. m. Soon after the date of visit, a recommendation of the State Board of Charities was published, urging that three meals a day be provided for all inmates of almshouses in winter as well as in summer.

Mr. and Mrs. Walden have recently completed their sixteenth year of service as keepers of the almshouse, and deserve commendation for their careful and efficient management.

NORWICH.

Visited by Mr. Kellogg in February, 1896.

Almshouse is owned by town, and is situated on west side of Yantic River about one mile from the City Hall; West Side electric cars pass within a quarter of a mile from the house. About 30 acres of land are attached.

Keepers, Mr. and Mrs. Marvin L. Bailey, whose contract is renewed April 1, annually.

Terms, $800.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 61; 35 men, 26 women.

Number of insane, 4; 2 men, 2 women, all of whom have been in the State Hospital.

Number of feeble-minded, 5; 2 men, 3 women.

Number able to work, 28; 20 men, 8 women.

Occupations, farm work and housework.

The house is a three-storied structure of brick, and is heated by steam and lighted by gas. All departments presented an appearance of neatness and comfort. The same custom prevails here, as at New London, of furnishing but two meals a day during the winter months, and the attention of the authorities is called to the recommendation made in that case.

The insane inmates are cared for in cells in the basement which were originally intended for the confinement of prisoners. The house is visited every month by a committee of ladies from the United Workers Association of the city, and religious services are conducted on Sundays by delegations from the churches and other religious organizations.

COLCHESTER.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is distant from the railway station about a quarter of a mile across the fields. About 90 acres of land are attached.

Keepers, Mr. and Mrs. Fred I. Phillips, whose contract expires April 1.

Terms, $400.00 a year, not including out-door relief.

Prisoners are received, but are kept separate from other inmates.

Number of inmates at date of visit, 9; 7 men, 2 women.

Number of feeble-minded, 3; 1 man, 2 women.

Number able to work, 5; 4 men, 1 woman.

Occupations, housework for the woman and work upon the farm and the town roads for the men.

The place is neat and comfortable, and the inmates appear well cared for. A bath-tub and furnace are much needed, however, as the wood-burning stoves by which the house is heated, are insufficient and dangerous. Tramps are lodged in a comfortable outbuilding where 496 were entertained during the year.

GROTON.

Visited by Mr. Kellogg in March, 1896.

Almshouse is owned by town, and is situated two and one-half miles west from Mystic village, or four and one-half miles east from Groton village. About 75 acres of land are attached.

Keepers, Mr. and Mrs. Owen H. Williams, whose contract is renewed March 1, annually.

Terms, $300.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 4; 2 men, 2 women.

Number of insane, 2; 1 man, 1 woman, both of whom have been in the State Hospital.

All of the inmates are able to work, the women being employed in housework and the men assisting on the farm.

The town farm was presented to Groton by Capt. Elihu Spicer, who left in his will $5,000.00 to be devoted to the maintenance and repair of the buildings at the farm. About $4,000.00 of this sum have been expended in the erection of a large addition to the keeper's house, two stories and a half in height, which was completed and first occupied in October, 1894. It contains seventeen bed-rooms with accommodations for twenty-two inmates, also sitting-room, bath-room, etc., and is heated throughout by steam. The quarters are exceptionally neat and attractive.

The inmates are furnished three meals a day at all seasons of the year, and appear to be under humane and kindly management.

LEDYARD.

Visited by Mr. Kellogg in March, 1896.

Almshouse is owned by town, and is situated on Cider Hill, six miles north from the village of Mystic. About 225 acres of land are attached.

Keepers, Mr. and Mrs. Henry Gallup from April 1, 1896.

Terms, $2.00 a week for each inmate to include board and clothing, while on the other hand an annual rental of $100.00 is charged against the keepers for the use of the farm.

Prisoners are not received.

Number of inmates at date of visit, 3 women.

Number of insane, 2 women, neither of whom has been in the State Hospital.

Two of the women are able to assist somewhat in the housework.

The place, which was formerly known as the Charles Park farm, was purchased by the town in March, 1895. The house is very old but fairly comfortable. The bathing and sanitary arrangements are primitive as in most old farm-houses. The inmates are given two regular meals a day in winter and a light lunch before retiring.

Three or four other persons are boarded by the town in families at $1.50 to $2.00 a week, and others are given temporary assistance when necessary.

NORTH STONINGTON.

Visited by Mr. Kellogg in March, 1896.

The town has no almshouse, and at the date of visit was supporting or assisting eight persons by furnishing rent, fuel, etc., or by paying for their board in private families or with relatives. Three of the persons dependent were visited and and were found to be comfortably situated.

STONINGTON.

Visited by Mr. Kellogg in March, 1896.

Almshouse is owned by town, and is situated three and one half miles north from the railway station. About 100 acres of land are attached.

Keepers, Mr. and Mrs. George H. Maxson, whose contract is renewed March 25, annually.

Terms, $1.50 a week for ordinary cases, and $2.00 if the person is troublesome or helpless.

Prisoners are not received.

Number of inmates at date of visit, 16; 13 men, 3 women.

Number of insane, 2 men, neither of whom has been in the State Hospital.

Number of feeble-minded, 2; 1 man, 1 woman.

Number able to work, 5; 3 men, 2 women.

The men are employed in work on the farm, and the women are engaged in housework.

The house is old but fairly comfortable. The women occupy rooms on the upper floor of the main part, while the men's quarters are situated in an ell. Steam heat is provided in the halls, and the bed-rooms were found to be passably neat. Separate sitting-rooms are provided for the sexes, who meet in a common dining-room for meals. The same custom prevails here, as in some other towns in the County, of furnishing but two meals a day to the inmates during the winter months.

WATERFORD.

Visited by Mr. Kellogg in September, 1896.

Almshouse is owned by town, and is situated five miles northwest from the city of New London. About 150 acres of land are attached.

Keepers, Mr. and Mrs. N. D. Getchel, whose contract is renewed April 1, annually.

Terms, $350.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 6; 5 men, 1 woman.

Number of insane, 1 woman, who has been in the State Hospital.

Number of feeble-minded, 3 men.

Number able to work, 1 man.

The house is very old, and most of the inmates occupy small rooms in an ell, directly under the roof, which must be excessively hot in summer and bitterly cold in winter.

The insane woman was confined in a small room having a cement floor and no furnishings save a tick filled with straw. She was unable to care for her person decently and it was impossible to keep her properly clothed. A letter was therefore sent to the Selectmen of the town urging her prompt return to the State Hospital at Middletown. A general renovation of the almshouse or the purchase of a new place for the purpose was also advised.

FAIRFIELD COUNTY.

There are twenty-three towns in Fairfield County, of which eight have almshouses owned by the town and four maintain almshouses owned by private individuals. Visits have been made to the towns mentioned in the appended list, and reports on the condition of the poor are presented as follows:

BRIDGEPORT.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town. About 110 acres of land are attached.

Keepers, Mr. and Mrs. Michael Logan, whose contract is renewed April 1, annually; assistants, Mr. Thomas Logan and Miss Margaret Logan.

Terms, $2,080.00 a year for the four persons, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 132; 97 men, 34 women, 1 infant under two years.

Number of insane, 23; 15 men, 8 women, all of whom have been in the State Hospital.

Number of feeble-minded, 14; 9 men, 5 women.

Number able to work, 60; 41 men, 19 women.

The men work on the farm and do various parts of the housework in their department, while the women are employed in housework and sewing. The whole place is neat and clean and appears to be well managed. The building is heated by steam, but the ventilation in the old part is rather defective. The food is wholesome and abundant. A new two storied extension of brick has been added to the main building for use as a ward for insane women. It contains eleven cells on the first floor and single rooms on the second floor.

DANBURY.

Visited by Mr. Whittlesey in March, 1895, and by Mr. Kellogg in January, 1896.

Almshouse is owned by town and is situated on Osborn Street one mile northwest from the center. About 100 acres of land are attached.

Keepers, Mr. and Mrs. J. A. Pulling, whose contract is renewed May 1, annually.

Terms, $900.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 52; 33 men, 19 women.

Number of insane, 4, 1 man, 3 women, all of whom have been in the State Hospital.

Number of feeble-minded, 11; 6 men, 5 women.

Number able to work, 37; 25 men, 12 women.

The women are engaged in housework and the men are employed on the farm and about the premises. The almshouse is a handsome three storied structure of brick, situated on high ground, and was first opened for the reception of inmates in November, 1894. It is heated throughout by steam and is lighted by gas. Bath and toilet rooms are located on every floor. The second floor is arranged as dormitories and the third floor in single rooms. Large hospital rooms are also provided for men and women. All departments are neat and well kept and appear to be under efficient management.

BROOKFIELD.

Visited by Mr. Kellogg in September, 1895.

The town has no almshouse, and at the date of visit was boarding one old man in a private family at the cost of $1.00 a week. In addition, one woman is boarded at Tariffville. Two men and one woman are maintained at the State Hospital for the Insane. One boy is boarded in Danbury and other persons are given temporary relief when necessary.

DARIEN.

Visited by Mr. Kellogg in February, 1896.

The town owns no almshouse, but rents a small place half a mile south from the railway station. It is in charge of Mrs. Sarah E. Hall, who boards two old men at the rate of $3.00 a week for each. One of the men is able to do some work about the place. The town furnishes clothing and medical attendance in addition. The house was small, old and dirty and showed general signs of neglect. The beds were very bad, being dirty and supplied with but little bedding. A letter was sent to the first Selectman of the town urging that the condition of the place be improved at once.

FAIRFIELD.

Visited by Mr. Kellogg in September, 1895.

Fairfield has no almshouse, but the town poor are boarded in private families and several persons are helped in their homes. There are also inmates supported at the State Hospital for the Insane and at the Lakeville School.

GREENWICH.

Visited by Mr. Whittlesey in November, 1895.

Almshouse is owned by town. About 125 acres of land are attached.

Keepers, Mr. and Mrs. Maurice Nolan, whose contract expires January 1.

Terms, $500.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 16; 11 men, 3 women, 2 children.

Number of feeble-minded, 2 men.

Number able to work, 10 men, 1 woman.

Occupations, farm work and housework.

The house is clean throughout and presents an attractive appearance of neatness and good order. One child partly dumb and not very intelligent, nine years old, was in the house with the other inmates, and the selectmen were communicated with at once with a view to removing the child elsewhere.

HUNTINGTON.

Visited by Miss Bacon in September, 1896.

The town has no almshouse but furnishes temporary assistance to families and individuals when needed.

NEWTOWN.

Visited by Mr. Kellogg in September, 1895.

The town has no almshouse but boards 5 paupers, 3 men and 2 women, with Mrs. Martin Lynch at the rate of $3.00 a week for each in addition to clothing. Two of the inmates are feeble-minded, 1 man and 1 woman, and one man is epileptic. Mrs. Lynch's house is situated three miles southwest from the Newtown railway station, or four miles south from the Sandy Hook station on the New England railroad. It is fairly comfortable, but in rather poor repair. The women are accommodated in rooms down stairs and the men occupy a large upper loft in the rear of the house. Seven other persons are boarded by the town in private families.

NORWALK.

Visited by Mr. Kellogg in October, 1895.

Almshouse is owned by town and is situated one and one-quarter miles east from Norwalk center. About 35 acres of land are attached.

Keepers, Mr. and Mrs. Charles H. Hoyt.

Terms, $450.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 32; 17 men, 15 women.

Number of insane, 6; 2 men, 4 women, of whom 1 woman has been in the State Hospital.

Number able to work, 28; 15 men, 13 women.

Occupations, farmwork and housework.

The house is a three-storied wooden structure, with basement, and is heated throughout by steam. There are no fire escapes and the only water supply in the building is a pump in the kitchen. Improved facilities in these directions were recommended. There are no lights in the hallways or bedrooms. Aside from these deficiencies the place appears to be well kept.

STAMFORD.

Visited by Mr. Spencer in August, 1895.

Almshouse is owned by town. About 100 acres of land are attached.

Keepers, Mr. and Mrs. J. H. Parker, whose contract expires April 1.

Terms, $600.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 27; 7 men, 19 women, 1 child.

Number of insane, 4; 1 man, 3 women, all of whom have been in the State Hospital.

Number of feeble-minded, 10; 1 man, 9 women.

Number able to work, 5; 1 man, 4 women.

New bath rooms and an ample water supply have recently been added, as well as an extension, 40 by 60 feet, to the original building. The place appears to be under careful and efficient management.

STRATFORD.

Visited by Mr. Kellogg in September, 1895.

Stratford has no almshouse, and the town poor are given assistance in their homes. There are three inmates supported at the State Hospital for the Insane and one chronic invalid at the Bridgeport Hospital.

WESTPORT.

Visited by Mr. Kellogg in September, 1895.

Almshouse is not owned by town, but is managed by private parties; is situated about one mile northeast from the center of the town.

Keeper, Mr. Charles H. Kemper, who employs a matron, Mrs. Josephine Page, in immediate charge of the paupers.

Number of inmates at date of visit, 3 men, none of whom was able to work.

The house is large and fairly comfortable, and has possible accommodations for twenty inmates. It is heated by stoves, and, like many farm-houses, has only limited facilities for bathing. In summer the men are lodged in a small building in the rear which was not so neat as is desirable. Mr. Kemper furnishes clothing and medical attendance, except for severe cases which are sent to the Bridgeport Hospital.

A number of other dependent persons are assisted in their homes under the direction of the same superintendent. The town maintains six inmates at the State Hospital for the Insane and one at the Lakeville School, and supports three children in the County Home.

WINDHAM COUNTY.

There are fifteen towns in the County, of which seven have almshouses owned by the town and one maintains an almshouse owned by a private individual. The towns mentioned in the appended list have been visited and reports on the condition of the poor are presented as follows:

WINDHAM.

(*Willimantic.*)

Visited by Mr. Kellogg in September, 1895.

Almshouse is opened by town and is situated one mile south from the railway station. About 70 acres of land are attached.

Keepers, Mr. and Mrs. John M. Palmer, whose contract is renewed April 1, annually.

Terms, $600.00 a year.

Prisoners are received and are kept separate from the paupers.

Number of inmates at date of visit, 39; 22 men, 17 women.

Number of insane, 3; 1 man, 2 women, none of whom has been in the State Hospital.

Number able to work, 10; 5 men, 5 women.

Occupations, farm work and housework.

The house is a large, three-storied building heated throughout by steam and lighted by gasoline. There is one fire-escape from the top floor, but increased provision for this purpose was recommended. A store is maintained in the building from which provisions are furnished to the outside poor under the direction of the Keeper. All departments are neat and comfortable, and appear to be under good management.

PUTNAM.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated two miles southwest from the center on the Pomfret road. About 180 acres of land are attached.

Keepers, Mr. and Mrs. Leonard Aldridge, whose contract expires April 1.

Terms, $400.00 a year, for which the Keeper also has charge of the outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 11; 3 men and 8 women.

Number able to work, 4; 1 man, 3 women.

Occupations, farm work and housework.

The women room in the main house, while accommodations are furnished for men in an older building close by. A hot-water heating apparatus and a new bath-room were being completed in the main house at the date of visit. The house for the men is heated by stoves, but is comfortable. Over two thousand tramps were lodged during the year in a rough shed on the premises.

BROOKLYN.

Visited by Mr. Kellogg in May, 1896.

The town owns no almshouse but boards its dependent poor with Mrs. C. M. Spaulding, who lives three miles north from the center and the same distance south from the Pomfret Station on the New England railroad.

The terms are $3.00 a week for each inmate.

No prisoners are received.

At the date of visit there was only one inmate, an old man, who appeared to receive good treatment.

CANTERBURY.

Visited by Mr. Kellogg in May, 1896.

Almshouse is owned by town. About 100 acres of land are attached.

Keepers, Mr. and Mrs. Julius Tracy, whose contract expires April 1.

Terms, $1.75 a week for each inmate.

Prisoners are not received.

Number of inmates at date of visit, 3; 1 man, 2 women, all of whom are somewhat feeble-minded.

The house is old and poorly furnished. The rooms are dirty and the beds poor. The only heat is received from a stove in the kitchen and the facilities for washing are inadequate. A change of keepers is anticipated soon.

KILLINGLY.

Visited by Miss Bacon in November, 1895.

Almshouse is owned by town. About 100 acres of land are attached.

Keeper, Mr. Joseph B. Hopkins.

Terms, $500.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 16; 7 men, 9 women.

Number of feeble-minded, 1 woman.

All of the inmates are able to do some work. This is one of the best almshouses in the State, and the inmates appear to be contented. The Keeper has been in charge for ten years. The food is good, and the house warm and comfortable. Better facilities for bathing, however, are greatly needed.

PLAINFIELD.

Visited by Mr. Kellogg in May, 1896.

Almshouse is owned by town, and is situated three miles northeast from the station at Plainfield, or one mile east from the station at Central Village. About 70 acres of land are attached.

Keepers, Mr. and Mrs. George L. Stetson, whose contract is renewed March 23, annually.

Terms, $350.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 11; 5 men, 6 women.

Number of insane, 3 women, two of whom have been in the State Hospital.
Number of feeble-minded, 4; 2 men, 2 women.
Number able to work, 3; 1 man, 2 women.
Occupations, farm work and housework.

The house is old, but is kept in good condition. It is heated by stoves and contains no bath-tub. The water supply and system of drainage are only fair. Tramps are lodged in an out-building, and an average of 170 a month during the winter are entertained.

POMFRET.

Visited by Mr. Kellogg in September, 1895.

The town has no almshouse, but at the date of visit was aiding twelve persons in their homes or boarding them in private families. Two inmates are supported at the State Hospital for the Insane and one at the Lakeville School for Imbeciles.

STERLING.

Visited by Miss Bacon in November, 1895.

The town has no almshouse and only a few persons dependent upon its charity. These are boarded in private families, or are assisted in their own homes.

THOMPSON.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated four miles east from Thompson center and seven miles northeast from the center of Putnam. About 100 acres of land are attached.
Keepers, Mr. and Mrs. Jerome H. Mills, whose contract expires April 1.
Terms, $300.00 a year, not including outdoor relief.
Prisoners are not received.
Number of inmates at date of visit, 7; 4 men, 3 women.
Number of insane, 1 man.

Number able to work, 7; 4 men, 3 women.
Occupations, farm work and housework.

The house is old but appeared neat and comfortable, and the inmates had no complaints to make. Old wooden bedsteads of a clumsy pattern are in use, and should be replaced by neater ones of iron.

WOODSTOCK.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated nine miles northwest from the railway station at Putnam.
Keepers, Mr. and Mrs. B. W. Bates, whose contract expires April 1.
Terms, $400.00 a year, not including outdoor relief.
Prisoners are not received.
Number of inmates at date of visit, 10; 5 men, 4 women, 1 boy, fourteen years of age.
Number of feeble-minded, 1 man and the boy.
One of the men has been in the State Hospital for the Insane.
All of the inmates are able to do some work, the men being employed on the farm and the women in housework and sewing.

The house is finely situated on a high hill and commands extensive views of the surrounding country. All departments appeared exceptionally neat and well kept. A new barn has recently been erected and all of the buildings freshly painted. Recommendation was made that a furnace take the place of the numerous stoves which are now required to heat the house. The fourteen year old boy, Asa Lawrence by name, has been in the almshouse for seven years, and it has never been deemed advisable to send him to the Lakeville School.

LITCHFIELD COUNTY.

There are twenty-six towns in the county, of which eight have almshouses owned by the town and four maintain almshouses owned by private individuals. Visits have been made to the towns mentioned in the appended list and reports on the condition of the poor are presented as follows:

LITCHFIELD.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated two and one-half miles northeast from the center near the Torrington road. About 200 acres of land are attached.

Keepers, Mr. and Mrs. Joseph Merriman, whose contract is renewed April 1, annually.

Terms, $600.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 10; 6 men, 4 women.

Number of insane, 2 men, both of whom have been in the State Hospital.

Number of feeble-minded, 7; 4 men, 3 women.

Number able to work, 7; 3 men, 4 women.

Occupations, farm work, housework and sewing.

The house is a large wooden structure and has an exposed situation on a high hill. At the date of visit the only provision for heating the building was stoves in the lower rooms. A letter was addressed by the Board to the first Selectman urging the introduction of a more complete heating apparatus, and it is understood that a furnace has since been added. It was also recommended that some means be adopted for lighting the halls and stairways.

All departments presented an appearance of cleanliness and good order. The food is sufficient and the health of the inmates good. A considerable number of tramps are sheltered during the winter months.

WINCHESTER.

(*Winsted.*)

Visited by Miss Hall and Mr. Kellogg in October, 1895, and by Mr. Kellogg in April, 1896.

Almshouse is owned by town, and is situated one and a half miles east from the railway station at Winsted. About 100 acres of land are attached.

Keepers, Mr. and Mrs. Joseph Poole, whose contract is renewed April 1, annually.

Terms, $3,200 a year, including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 11; 7 men, 2 women, 2 infants, 1 just past two years of age who is expected to go out soon.

Number of insane, 1 man.

Number able to work, 4; 3 men, 1 woman.

Occupations, farm work and housework.

The house is neat and clean, and appears to be well managed. There is no provision for heating the halls or upper rooms, and the only water supply is obtained from a well which at times becomes dry. The cellar, on the contrary, is often very wet. Recommendations to remedy these defects were made by the Board to the Selectmen, but at the second visit they had not been put into effect. An improvement in these respects will be looked for at an early date.

NEW MILFORD.

Visited by Miss Bacon in August, and Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated two and a half miles south from the center. About 150 acres of land are attached.

Keepers, Mr. and Mrs. William Kinney, whose contract expires April 1.

Terms, $350.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 7; 3 men, 3 women, 1 girl, nine years old.

Number able to work, 3; 2 men, 1 woman.

Occupations, farm work and housework.

The house is over one hundred years old and has quarters for the town's poor in an ell adjoining. There is a common sitting-room for men and women from which the other rooms on that floor are warmed. No provision is made for heating the upper rooms. The floors are irregular and worn, and the walls and ceilings are roughly patched.

The little girl is a cripple and is rather below the average in intelligence. She has been in the almshouse for six years, and her early removal to some more suitable place was strongly urged.

BRIDGEWATER.

Visited by Mr. Kellogg in September, 1895.

The town has no almshouse. At the date of visit two men and two women were boarded in private families at prices ranging from $2.00 to $3.00 a week for each person. One child was boarded in Danbury, and one inmate supported at the State Hospital for the Insane.

CORNWALL.

Visited by Mr. Kellogg in September, 1895.

The town has no almshouse, but at the date of visit eight persons were boarded in private families at an average rate of $6.00 a month for each. The town furnishes clothing, bedding and medical attendance when necessary.

KENT.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated four miles northwest from the railway station. About 130 acres of land are attached.

Keepers, Mr. and Mrs. Lewis Ives, whose contract is renewed April 1, annually.

Terms, $500.00 a year, including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 5; 3 men, 2 women.

Number of feeble-minded, 1 woman.

Number able to work, one man, who assists in odd jobs about the farm.

The inmates are accommodated in a small extension to the keeper's house, which contains on the ground floor a common sitting and dining-room for both sexes, and three very small bed-rooms opening from it. The two women occupy one of the rooms, sharing the same bed, although one of them is suffering from a severe chronic ailment. One old man, Weston Ingraham, keeps himself and his room in a condition that is filthy beyond description, although the room is scrubbed out weekly. Other men sleep in the garret of the extension in summer and in the keeper's house in winter.

A communication was sent from the Board to the Selectmen of the town urging that the quarters for the poor be enlarged and thoroughly renovated, and material changes in these directions will be looked for at an early date.

NEW HARTFORD.

Visited by Mr. Kellogg in October, 1895, and in April, 1896.

Almshouse is not owned by town, but is under the charge of private parties. It is situated on Town Hill, one mile west of the railway station.

Keeper, Mr. Morton Sanford.

Terms, $11.00 a month for each inmate.

Prisoners are not received.

Number of inmates at date of visit, 5; 4 men, 1 woman.

Number able to work, 3; 2 men, 1 woman.

The inmates are kept in a one-story wooden structure at a little distance from the keeper's house. The building is lightly constructed and has no cellar. There is a common sitting and dining-room for men and women; all of the rooms are small, and the beds are old. No cooking is done in the building, the meals being brought in by the keeper's family. The house is in fairly good order, but is not up to the standard set by other towns of the same size.

NORFOLK.

Visited by Miss Hall in October, 1895.

Almshouse is owned by town.

Keeper, Mr. Thomas Carroll, whose contract expires April 1.

Terms, $1.00 a week for each inmate, and the use of the farm.

Prisoners are not received.

Number of inmates at date of visit, 3; 2 men, 1 woman.

Number of insane, one woman who has been in the State Hospital.

Number of feeble-minded, 1 man.

Number able to work, 2; 1 man, 1 woman, who assist about the house and the premises.

The house is well kept, and the inmates appeared contented and happy. Four hundred and eighteen tramps were sheltered during the year.

NORTH CANAAN.

Visited by Mr. Kellogg in November, 1895.

Almshouse is not owned by town; is managed by private parties.

Keepers, Mr. and Mrs. Miles Rockwell.

Terms, $2.50 a week for each inmate, besides clothing and medical attendance.

Prisoners are not received.

Number of inmates at date of visit, one man, who does some light work about the place.

The house is situated at Canaan Valley, five miles northeast from the railway station at Canaan and three miles northeast from the one at East Canaan. It is an old weather-beaten structure and shows signs of needed repairs. The one inmate appears to receive fairly good care.

The town also boards two dependents at Tariffville, and supports four inmates at the State Hospital for the Insane.

SALISBURY.

Visited by Mr. Kellogg in October, 1895.

Almshouse is owned by town, and is situated one and a half miles south from the center and an equal distance from the station at Lakeville. About 150 acres of land are attached.

Keepers, Mr. and Mrs. H. J. Melius, whose contract expires April 1.

Terms, $360.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 7; 4 men, 3 women.

Number of feeble-minded, 2; 1 man, 1 woman.

Number able to work, 2 men, who assist on the farm.

The house was formerly an old tavern, but has been kept in good repair and is exceptionally neat and clean. The water supply and system of drainage are good. New iron bedsteads are desired in place of the old-fashioned wooden ones now in use. The inmates receive considerate care, and religious services are held in the house twice a month.

SHARON.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated three and a half miles east from Sharon village and four miles northwest from the railway station at Cornwall Bridge. About 200 acres of land are attached.

Keepers, Mr. and Mrs. Franklin Wells, whose contract is renewed April 1, annually.

Terms, $182.00 a year, besides clothing, bedding and medical attendance.

Prisoners are not received.

Number of inmates at date of visit, 6; 3 men, 3 women.

Number of feeble-minded, 2; 1 man, 1 woman.

Number able to work, 5; 3 men, 2 women.

Occupations, farm work and housework.

This is a large farm house, of which the front and pleasantest part is reserved for the use of the poor. The rooms are large and are all heated by stoves. The house was fairly clean, but at the hour of visit, 2 o'clock in the afternoon, the beds were not made and there was considerable disorder noticeable. More attention to conditions of neatness was recommended.

TORRINGTON.

Visited by Mr. Kellogg in September, 1895.

Almshouse is owned by town, and is situated four miles north from the center; about 200 acres of land are attached.

Keepers, Mr. and Mrs. H. A. Sanford, whose contract is renewed April 1, annually.

Terms, $720.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 5; 2 men, 3 women.

Number of insane, one woman.

Number of feeble-minded, one woman.

Number able to work, 4; 2 men, 2 women.

Occupations, farm work and housework.

A new two-storied addition to the keeper's house was completed in October, 1894, at a cost of $2,500.00, and contains thirteen bed-rooms for the town poor. Separate sitting-rooms are provided for men and women, and a bath-room, also, with hot and cold water is included in the improvements. The rooms on the first floor and the upper halls are warmed by means of a hot-air furnace.

All parts of the house presented an appearance of neatness, cleanliness and comfort, and appeared to be under efficient management.

WOODBURY.

Visited by Mr. Whittlesey in April, 1895.

Almshouse is not owned by town; is managed by private parties.

When last reported, there were two inmates.

A few families are assisted in their own homes, and several insane persons are supported by the town.

MIDDLESEX COUNTY.

There are fifteen towns in Middlesex County, of which seven have almshouses owned by the town. Visits have been made to the towns mentioned in the appended list, and reports on the condition of the poor are presented as follows:

MIDDLETOWN.

Visited by Mr. Whittlesey in August, 1895, and October, 1896.

Almshouse is owned by town; about 50 acres of land are attached.
Keepers, Mr. and Mrs. A. C. Ward, whose contract expires April 1.
Terms, $700.00 a year, not including outdoor relief.
Prisoners are not received.
Number of inmates at date of visit, 29; 15 men, 14 women.
Number of insane, 8 men, of whom 4 have been in the State Hospital.
Number of feeble-minded, 6 women.
Number able to work, 6; 4 men, 2 women.
Occupations, farm work and housework.

The house is old and not conveniently arranged. It cannot be ventilated properly and there is a lack of suitable provision for separation of the sexes. The water supply is inadequate, especially in view of the proximity of the house to the railway and the danger of fire from the sparks of passing locomotives. The place is kept in good order and presents an appearance of careful management. Religious services are held on Sunday afternoons.

HADDAM.

Visited by Mr. Spencer in April, and by Miss Bacon and Dr. Tracy in August, 1895.

Almshouse is not owned by town; is managed by private parties.

Keeper, Mr. Zachariah Brainard.

Terms, $500.00 a year.

Number of insane, 1 man, who has been in the State Hospital.

The house is old and wholly unfit for the purpose. Since the date of visit, however, it is learned that the almshouse has been given up and the town now boards its dependent poor in private families, or assists them in their homes when necessary.

CHATHAM.

Visited by Miss Hall in August, 1895.

Almshouse is owned by town; about 75 acres of land are attached.

Keeper, Mr. H. C. Ackley, whose contract expires April 1.

Terms, $275.00 a year, not including outdoor relief.

Prisoners are not received.

Number of inmates at date of visit, 3; 2 men, 1 woman, all of whom were able to do some work. The house is in good condition and all departments present an appearance of cleanliness and careful management.

CROMWELL.

Visited by Mr. Whittlesey in October, 1896.

Almshouse is owned by town; about 85 acres of land are attached.

Keepers, Mr. and Mrs. Charles Hodge, whose contract expires April 1.

Terms, $30.00 a month, not including outdoor relief.

Prisoners are not received.

There were no inmates at the date of visit.

Two men who work and support themselves during the summer are sheltered at the almshouse through the winter. The Keeper cares for the farm and works on the town roads.

EAST HADDAM.

Visited by Mr. Spencer in October, 1896.

Almshouse is owned by town; about 120 acres of land are attached.

Keepers, Mr. and Mrs. W. W. Gates, whose contract expires April 1.

Terms, $350.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 15; 5 men, 8 women, 2 children, one of whom was four years old.

Number of feeble-minded, 3 women.

Number able to work, 8; 4 men, 4 women.

Occupations, farm work and housework.

The house is in good condition and is comfortably heated by stoves. The four year old boy has been in the County Home, but was discharged as being feeble-minded. It was decided to take no immediate action on his case, but to keep the child in view with an idea of his going later to Lakeville.

ESSEX.

Visited by Mr. Spencer in October, 1896.

Almshouse is owned by town, about 1 acre of land is attached.

Keeper, Mr. Charles Waterhouse.

There were no inmates at the date of visit.

PORTLAND.

Visited by Mr. Kellogg in October, 1896.

Almhouse is owned by town, and is situated three miles east of the center on the road to Cobalt; about 80 acres of land are attached.

Keepers, Mr. and Mrs. Thomas B. Pitkin, whose contract expires April 1, annually.

Terms, $400.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 19; 14 men, 5 women.

Number of insane, 1 woman, who has been in the State Hospital.

Number of feeble-minded, 1 man.
Number able to work, 11 men, 4 women.

The women are engaged in housework and a number of the men are employed on the town roads under the direction of the Keeper. The insane woman is very noisy at night, and a letter was sent by the Board to the selectmen urging her early removal to the State Hospital. Separate sitting-rooms for men and women were recommended and the need of a bath-room was pointed out. The house in general is clean and comfortable.

SAYBROOK.

Visited by Mr. Spencer in October, 1896.

Almshouse is owned by town, but is rented to private parties as the town has not a sufficient number of paupers to maintain the house.

There were no inmates at date of visit, but one person was boarded in a private family and two inmates were supported in the State Hospital for the Insane.

WESTBROOK.

Visited by Mr. Whittlesey in September, 1895.

Westbrook has no almshouse but during the past year has supported one man at $5.00 a week and one woman at $8.00 a month. One town ward is supported in the Hospital for the Insane. Tramps are given lodging and breakfast.

TOLLAND COUNTY.

There are thirteen towns in the County, of which two have almshouses owned by the town and five maintain almshouses which are owned by private individuals. Visits have been made to the towns mentioned in the appended list and reports on the condition of the poor are presented as follows:

TOLLAND.

Visited by Mr. Kellogg in February, 1896.

The town has no almshouse and at the date of visit was assisting the following persons: Mr. and Mrs. Snyder, assisted in their home; Marietta Willis, boarded at $2.00 a week; one boy, fifteen years old (foolish), boarded at $1.50 a week.

ANDOVER.

Visited by Miss Hall and Mr. Kellogg in March, 1896.

The town has no almshouse and at the date of visit was partially supporting two persons, J. A. Bingham and Samuel House. House has a daughter who is also assisted by the town. Other persons are helped as occasion requires.

ELLINGTON.

Visited by Mr. Kellogg in February, 1896.

Almshouse is not owned by town, but is managed by private parties. It is situated four miles north from Rockville and one mile east from Ellington center.

Keeper, Mr. R. A. Taft, whose contract expires April 1.

Terms, $3.00 a week for ordinary cases, or $4.00 a week for sick or helpless persons.

Prisoners are not received.

Number of inmates at date of visit, 1 blind woman over eighty years old.

This is a very pleasant place, neat and attractive. Tramps are lodged in the attic and are given supper and breakfast. Two other persons are supported by the town in other places.

HEBRON.

Visited by Mr. Kellogg in September, 1895.

The town has no almshouse but boards its poor with Mrs. Susan R. Buell at two dollars per week for each person. The place is a comfortable farm-house, one and a half miles west from Hebron center and four and a half miles northwest from the Turnerville station. At the time of visit there was but one inmate, a negro, Benjamin Prophet, about ninety-five years old. He had been kept during the summer in a small building attached to the house and appeared to be well cared for. About a dozen tramps had been entertained during the year.

SOMERS.

Visited by Mr. Kellogg in February, 1896.

Almshouse is not owned by town, but is managed by private parties. It is situated two miles northeast from the center.

Keeper, Mr. A. O. Davis.

Terms, $2.60 a week for each inmate.

Number of inmates at date of visit, 5; 3 men, 2 women.

Number of insane, 1 woman.

Number of feeble-minded, 1 woman.

One man is able to work and assists about the place.

The inmates are quartered in a building on the premises, and meals are carried to them from the Keeper's house. The women room down stairs and the men in an upper half-story, which must be exceedingly hot in summer. The house is heated by a stove and is fairly clean and comfortable. Tramps are given lodging, supper and breakfast at 50 cents a head.

VERNON.

Visited by Mr. Kellogg in February and by Miss Hall in May, 1896.

Almshouse is owned by town, and is situated one mile south from Rockville, or four miles northeast from Vernon station; about 85 acres of land are attached.

Keeper, Mr. E. R. Holman, whose contract expires April 1.

Terms, $600.00 a year, not including out-door relief.

Prisoners are not received.

Number of inmates at date of visit, 22; 7 men, 14 women, 1 infant.

Number of insane, 1 woman, who has been in the State Hospital.

Number of feeble-minded, 5 women.

A number of the inmates are able to work and assist on the farm and in the housework and in sewing for the inmates. The house in a two-storied brick structure with a large addition three stories in height. The building is heated by steam and is comfortably furnished. Bath-rooms and toilet rooms are provided. The house is clean and well-kept, and the food is good and abundant.

STATISTICS BY COUNTIES RELATING TO THE SUPPORT OF THE POOR.

The Selectmen and Treasurer of each of the one hundred and sixty-eight towns in Connecticut render to the taxpayers an annual report of receipts and expenses, etc., and, except in the case of five or six of the smaller towns, these reports are printed.

In order to ascertain what provision is made for the relief of the poor population, it has been customary to request the Selectmen to forward copies of their reports to the Board's office, and to incorporate in the Board's report statistics taken therefrom relating to the annual expenditure for the support of in and out-door poor.

It is noticeable in an examination of the reports that there is a marked dissimilarity in the manner of presenting the accounts. The ground covered is substantially the same in each, but local usage prevails rather than a uniform system. In a few reports the numbers and names of almshouse inmates are given, but as a rule those features are omitted; while as regards those who receive outside support, it is not possible from the data given to gather anything but approximate information. It is to be regretted that in a matter of so much interest and importance a more careful and detailed classification is not adopted, by means of which the exact numbers in receipt of public aid both in and out of almshouses, and the amount so spent may be plainly shown.

From the statistics as presented in the various reports, the total expense to the towns has been collated as nearly as possible under two headings, as follows:

1. Cash expended for almshouse support.

2. Cash expended for all poor outside almshouse.

Under these headings are included the cost for the support of the sick and insane poor, and dependent children.

The number of licenses issued for the sale of liquors and beer, and the amount received therefrom, are included in the tables.

STATISTICS CONCERNING SUPPORT OF POOR.

The following tables have been compiled from the Annual Reports of Towns, the Connecticut State Register and Manual and the Secretary of State's Abstract of the Returns of the County Commissioners for 1895:

HARTFORD COUNTY.

								Liquor and Beer Licenses for Year Ending June 30, 1895.			
Towns.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for All Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Total No. Licenses.	Total Amount Received.	Paid to County Treasurer	Paid to Town Treasurer
Hartford, -	53,230	$ 53,260,009	$35,007	$ 60,285	$ 95,292	1.8 mills	$1 79.0	259	$ 64,050	$3,202 50	$ 60,847 50
Avon, - -	1,182	470,115	—	939	939	2.0 "	79.4	—	—	—	—
Berlin, - -	2,600	1,121,594	590	864	1,454	1.3 "	55.9	1	10	50	9 50
Bloomfield, -	1,308	714,049	—	783	783	1.0 "	59.8	—	—	—	—
Bristol, - -	7,382	3,773,700	1,813	* 8,223	10,036	2.7 "	1 35.9	6	72	3 60	68 40
Burlington, -	1,302	360,560	—	1,773	1,773	4.9 "	1 36.1	10	976	48 80	927 20
Canton, - -	2,500	1,170,599	—	2,040	2,040	1.7 "	81.6	3	30	1 50	28 50
East Granby,	661	461,427	—	318	318	0.7 "	48.1	2	200	10 00	190 00
East Hartford,	4,455	2,731,555	1,107	2,536	3,643	1.3 "	81.7	3	30	1 50	28 50
East Windsor,	2,890	1,115,651	1,716	1,089	2,805	2.5 "	97.0	8	800	40 00	760 00
Enfield, - -	7,199	2,652,462	1,634	* 4,359	5,993	2.3 "	83.2	27	5,922	296 10	5,625 90
Farmington, -	3,179	1,599,385	1,926	2,565	4,491	2.8 "	1 41.3	14	3,220	161 00	3,059 00
Glastonbury, -	3,457	1,639,175	822	1,601	2,423	1.5 "	70.1	1	10	50	9 50
Granby, - -	1,251	380,850	—	971	971	2.5 "	77.6	3	300	15 00	285 00
Hartland, -	565	204,755	—	† 361	361	1.7 "	63.9	—	—	—	—
Manchester, -	8,222	4,061,773	2,280	6,907	9,187	2.3 "	1 11.7	7	84	4 20	79 80
Marlborough,	582	146,634	—	119	119	0.8 "	20.4	—	—	—	—
New Britain, -	19,007	9,111,419	4,501	*18,958	23,459	2.6 "	1 23.4	99	23,082	1,154 10	21,927 90
Newington, -	953	435,406	—	582	582	1.3 "	61.1	—	—	—	—
Plainville, -	1,993	691,549	—	1,517	1,517	2.2 "	76.1	2	20	1 00	19 00
Rocky Hill, -	1,069	403,081	—	940	940	2.3 "	87.9	—	—	—	—
Simsbury, -	1,874	1.399,393	1,630	447	2,077	1.5 "	1 10.8	—	—	—	—
Southington, -	5,501	2,199.020	2,231	1,298	3,529	1.6 "	64.1	24	5,393	269 65	5,123 35
South Windsor,	1,736	1,052,474	1,288	1,031	2,319	2.2 "	1 33.6	—	—	—	—
Suffield, - -	3,169	1,893,800	1,933	1,238	3,171	1.6 "	1 00.1	4	1,050	52 50	997 50
West Hartford,	1,930	2,953,772	—	1,437	1,437	0.4 "	74.5	—	—	—	—
Wethersfield,	2,271	1,306,806	2,160	748	2,908	2.2 "	1 28.0	2	20	1 00	19 00
Windsor, -	2,954	1,322,120	341	2,108	2,449	1.9 "	82.9	8	675	33 75	641 25
Windsor Locks,	2,758	1,619,706	—	2,742	2,742	1.7 "	99.4	10	802	40 10	761 90
	147,180	$100,252,839	$60,979	$128,779	$189,758	1.89 mills	$1 28.9	493	$106,746	$5,337 30	$101,408 70

*Included in this amount for Sick and Insane: Hartford, $33,591; Bristol, $1,535; Enfield, $1,992; New Britain, $3,705.
†Owing to the failure of the Hartland town officials to answer repeated requests for a Town Report, it has been necessary to use the figures of 1894.

NEW HAVEN COUNTY.

Towns.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for all Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Liquor and Beer Licenses for Year Ending June 30, 1895.			
								Total No. Licenses.	Total Amount Received.	Paid to County Treasurer	Paid to Town Treasurer
New Haven, -	86,045	$57,154,332	$40,336	*$40,924	$81,260	1.4 mills	$0 94.4	543	$135,726	$6,786 30	†$116,045 69
Waterbury, -	33,202	12,322,908	11,682	* 19,135	30,817	2.5 "	92.8	206	51,585	2,579 25	49,005 75
Ansonia, - -	10,342	3,199,703	3,048	* 6,198	9,246	2.9 "	89.4	58	14,535	726 75	13,808 25
Beacon Falls, -	505	224,505	—	164	164	0.7 "	32.5	4	400	20 00	380 00
Bethany, - -	550	371,015	—	570	570	1.5 "	1 03.6	2	200	10 00	190 00
Branford, - -	4,460	1,957,857	1,810	3,475	5,285	2.7 "	1 18.5	28	6,510	325 50	6,184 50
Cheshire, - -	1,929	985,884	2,300	875	3,175	3.2 "	1 64.6	1	12	60	11 40
Derby, - -	5,969	4,768,350	—	4,391	4,391	0.9 "	73.6	43	10,530	526 50	10,003 50
East Haven, -	955	710,149	—	540	540	0.8 "	56.5	—	—	—	—
Guilford, - -	2,780	1,304,356	964	1,154	2,118	1.6 "	76.2	1	12	60	11 40
Hamden, - -	3,882	1,788,611	593	1,732	2,325	1.3 "	60.0	10	2,350	117 50	2,232 50
Madison, - -	1,429	823,861	—	2,409	2,409	2.9 "	1 68.5	—	—	—	—
Meriden, - -	25,423	13,203,728	6,225	* 16,028	22,253	1.7 "	87.5	119	29,377	1,468 85	27,908 15
Middlebury, -	566	271,490	—	233	233	0.8 "	41.2	—	—	—	—
Milford, - -	3,811	1,451,833	—	1,644	1,644	1.1 "	43.1	8	1,615	80 75	1,534 25
Naugatuck, -	6,218	7,331,459	5,310	* 8,657	13,967	1.9 "	2 24.6	45	11,775	588 75	11,186 25
North Branford,	825	436,878	—	1,040	1,040	2.4 "	1 26.1	—	—	—	—
North Haven, -	1,862	809,438	—	1,410	1,410	1.7 "	75.7	—	—	—	—
Orange, - -	4,537	2,941,274	—	4,243	4,243	1.4 "	93.5	25	4,375	218 75	4,156 25
Oxford, - -	902	326,903	311	472	783	2.4 "	86.8	1	100	5 00	95 00
Prospect, - -	445	160,287	—	113	113	0.7 "	25.4	—	—	—	—
Seymour, -	3,300	1,308,867	—	4,629	4,629	3.5 "	1 40.3	13	3,075	153 75	2,921 25
Southbury, -	1,089	513,018	—	788	788	1.5 "	72.3	2	200	10 00	190 00
Wallingford, -	6,584	3,384,353	3,196	6,203	9,399	2.8 "	1 42.7	26	6,762	338 10	6,423 90
Wolcott, - -	522	218,692	—	136	136	0.6 "	26.0	—	—	—	—
Woodbridge, -	926	492,820	—	744	744	1.5 "	80.3	—	—	—	—
	209,058	$118,462,571	$75,775	$127,907	$203,682	1.72 mills	$0 97.43	1135	$279,139	$13,956 95	$265,182 05

*Included in this amount for Sick and Insane: New Haven, $23,900; Waterbury, $7,491; Ansonia, $1,434; Meriden, $3,165; Naugatuck, $1,140.
†Included in this amount: Paid to Treasurer of New Haven Police Fund, $6,447; paid to Treasurer of Firemen's Fund $6,447.01.

NEW LONDON COUNTY.

TOWNS.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for all Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	LIQUOR AND BEER LICENSES FOR YEAR ENDING JUNE 30, 1895.			
								Total No. Licenses.	Total Amount Received.	Paid to County Treasurer	Paid to Town Treasurer
New London, -	13,757	$ 9,182,997	$ 6,337	*$10,904	$17,241	1.9 mills	$1 25.3	80	$20,925	$1,046 25	$19,878 75
Norwich, - -	23,048	13,769,187	6,767	17,560	24,327	1.8 "	1 05.5	111	28,881	1,444 05	27,436 95
Bozrah, - -	1,005	443,578	—	1,184	1,184	2.7 "	1 17.8	—	—	—	—
Colchester, -	2,988	927,343	1,393	1,778	3,171	3.4 "	1 06.1	10	909	45 45	863 55
East Lyme, -	2,048	702,502	—	1,058	1,058	1.5 "	51.6	—	—	—	—
Franklin, -	585	276,357	—	154	154	0.6 "	26.3	2	200	10 00	190 00
Griswold, -	3,113	1,589,495	536	2,146	2,782	1.7 "	89.4	2	54	2 70	51 30
Groton, - -	5,539	1,880,807	3,626	689	4,315	2.3 "	77.9	1	12	60	11 40
Lebanon, -	1,670	861,546	—	2,303	2,303	2.7 "	1 37.9	—	—	—	—
Ledyard, - -	1,183	412,595	122	1,410	1,532	3.7 "	1 29.5	—	—	—	—
Lisbon, - -	548	243,353	110	291	401	1.6 "	73.2	—	—	—	—
Lyme, - -	977	266,727	—	370	370	1.4 "	37.9	—	—	—	—
Montville, -	2,344	954,707	1,073	1,728	2,801	2.9 "	1 19.5	—	—	—	—
N. Stonington,	1,463	499,124	—	1,234	1,234	2.5 "	84.3	—	—	—	—
Old Lyme, -	1,319	450,814	247	1,174	1,421	3.2 "	1 07.7	—	—	—	—
Preston, - -	2,555	869,279	—	1,198	1,198	1.3 "	46.9	6	471	23 55	447 45
Salem, - -	481	175,823	—	300	300	1.7 "	62.3	—	—	—	—
Sprague, - -	1,106	561,791	433	1,492	1,925	3.4 "	1 74.0	9	900	45 00	855 00
Stonington, -	7,184	2,775,703	2,028	* 3,922	5,950	2.1 "	82.8	3	36	1 80	34 20
Voluntown, -	1,060	224,807	—	576	576	2.6 "	54.3	—	—	—	—
Waterford, -	2,661	1,095,354	1,798	795	2,593	2.4 "	97.4	—	—	—	—
	76,634	$38,163,889	$24,470	$52,266	$76,736	2.01 mills	$1 00.13	224	$52,388	†$2,619 40	$49,768 60

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*Included in this amount for Sick and Insane: New London, $3,842; Norwich, $4,818; Stonington, $1,141.

†Nineteen Licenses Transferred, $38.00 additional.

FAIRFIELD COUNTY.

TOWNS.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for All Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	LIQUOR AND BEER LICENSES FOR YEAR ENDING JUNE 30, 1895.			
								Total No. Licenses.	Total Amount Received.	Paid to County Treasurer	Paid to Town Treasurer
Bridgeport, -	48,866	$ 56,847,856	$ 13,615	*$34,238	$ 47,853	0.8 mills	$0 97.9	400	$109,582	$5,479 10	$104.102 90
Danbury, -	19,473	7,419,094	8,885	* 19,639	28,524	3.8 "	1 46.9	83	19,596	979 80	18,616 20
Bethel, - -	3,401	1,195,951	—	3,293	3,293	2.8 "	96.8	—	—	—	—
Brookfield, -	989	480,338	—	685	685	1.4 "	69.2	2	200	10 00	190 00
Darien, - -	2,276	2,312,641	531	2,608	3,139	1.3 "	1 37.9	4	350	17 50	332 50
Easton, - -	1,001	394,118	—	1,120	1,120	2.8 "	1 11.9	—	—	—	—
Fairfield,- -	3,868	2,129,271	—	* 4,425	4,425	2.8 "	1 14.4	7	1,632	81 60	1,550 40
Greenwich, -	10,131	6,488,966	2,347	* 9,259	11,606	1.8 "	1 14.6	26	9,117	455 85	8,661 15
Huntington, -	4,006	1,565,758	—	2,580	2,580	1.7 "	64.4	2	24	1 20	22 80
Monroe, - -	994	383,099	—	312	312	0.8 "	31.4	—	—	—	—
New Canaan, -	2,701	1,890,451	784	1,900	2,684	1.4 "	99.4	7	575	28 75	546 25
New Fairfield,	670	346,512	—	1,159	1,159	3.3 "	1 72.9	—	—	—	—
Newtown, -	3,539	1,682,033	750	2,690	3,440	2.0 "	97.2	14	2,925	146 25	2,778 75
Norwalk, -	17,747	13,416.597	7,307	* 17,673	24,980	1.9 "	1 40.8	80	22,834	1,141 70	21,692 30
Redding,- -	1,546	504,255	—	1,124	1,124	2.2 "	72.7	—	—	—	—
Ridgefield, -	2,235	1,498,180	1,643	1,288	2,931	1.9 "	1 31.1	—	—	—	—
Sherman, -	668	344,152	—	714	714	2.7 "	1 06.9	—	—	—	—
Stamford, -	15,700	9,712,855	3,400	* 11,924	15,324	1.6 "	97.6	74	22,212	1,110 60	21,101 40
Stratford, -	2,608	1,060,010	—	1,445	1,445	1.4 "	55.4	11	757	37 85	719 15
Trumbull, -	1,453	603,331	—	552	552	0.9 "	37.9	—	—	—	—
Weston, - -	772	324,478	—	254	254	0.8 "	32.9	—	—	—	—
Westport, -	3,715	2,237,713	2,306	1,458	3,764	1.7 "	1 01.3	12	3,850	192 50	3,657 50
Wilton, - -	1,722	838,311	—	1,266	1,266	1.5 "	73.5	—	—	—	—
	150,081	$113,675,970	$41,568	$121,606	$163,174	1.44 mills	$1 08.72	722	$193,654	$9,682 70	$183,971 30

*Included in this amount for Sick and Insane: Bridgeport, $10,258; Danbury, $3,271; Fairfield, $1,296; Greenwich, $3,030; Norwalk, $4,513; Stamford. $2,867.

WINDHAM COUNTY.

Towns.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for All Poor Outside of Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Liquor and Beer Licenses for Year Ending June 30, 1895. Total No. Licenses.	Total Amount Received.	Paid to County Treasurer.	Paid to Town Treasurer.
Windham, - -	10,032	$ 4,455,666	$ 3,308	*$7,895	$11,203	2.5 mills	$1 11.6	39	$12,360	$618 00	$11,742 00
Putnam, - - -	6,512	3,033,815	1,448	* 2,817	4,265	1.4 "	65.5	5	60	3 00	57 00
Ashford, - - -	778	227,457	—	699	699	3.0 "	89.8	—	—	—	—
Brooklyn, - -	2,628	1,228,854	420	760	1,180	0.9 "	41.9	—	—	—	—
Canterbury, - -	947	418,806	412	281	693	1.7 "	73.2	—	—	—	—
Chaplin, - - -	542	185,079	—	200	200	1.1 "	36.9	—	—	—	—
Eastford, - - -	561	160,172	—	462	462	2.9 "	82.3	—	—	—	—
Hampton, - -	632	275,502	—	515	515	1.9 "	81.5	—	—	—	—
Killingly, - -	7,027	2,181,427	2,242	* 2,931	5,173	2.4 "	73.6	5	60	3 00	57 00
Plainfield, - -	4,582	1,799,442	2,340	2,132	4,472	2.5 "	97.6	2	24	1 20	22 80
Pomfret, - - -	1,471	938,753	—	1,238	1,238	1.3 "	84.2	—	—	—	—
Scotland, - - -	506	211,569	—	562	562	2.6 "	1 11.0	—	—	--	—
Sterling, - - -	1,051	340,289	—	708	708	2.1 "	67.4	5	440	22 00	418 00
Thompson, - -	5,580	1,551,661	960	3,827	4,787	3.1 "	85.8	—	-	—	—
Woodstock, - -	2,309	863,866	1,192	640	1,832	2.1 "	79.3	—	--	—	—
	45,158	$17,872,358	$12,322	$25,667	$37,989	2.13 mills	$0 84.12	56	$12,944	$647 20	$12,296 80

*Included in this amount for Sick and Insane: Windham, $1,739; Putnam, $1,200; Killingly, $1,103.

LITCHFIELD COUNTY.

Towns.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for all Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Liquor and Beer Licenses for Year Ending June 30, 1895.			
								Total No. Licenses.	Total Amount Received	Paid to County Treasurer	Paid to Town Treasurer
Litchfield, - - -	3,304	$ 2,909,177	$ 556	$ 2,516	$3,072	1.6mills	$0 92.9	8	$ 850	$ 42 50	$ 807 50
Winchester, - - -	6,183	2,688,138	3,244	158	3,402	1.3 "	55.0	15	2,700	135 00	2,565 00
New Milford, - -	3,917	1,909,763	1,476	2,731	4,207	2.2 "	1 07.4	8	1,900	95 00	1,805 00
Barkhamsted, - -	1,130	330,470	—	937	937	2.8 "	82.9	1	12	60	11 40
Bethlehem, - - -	543	352,670	—	663	663	1.9 "	1 22.1	—	—	—	—
Bridgewater,- - -	617	356,688	—	629	629	1.8 "	1 01.9	—	—	—	—
Canaan, - - -	970	461,630	—	1,070	1,070	2.3 "	1 10.3	3	300	15 00	285 00
Colebrook, - - -	1,098	318,805	—	710	710	2.2 "	64.7	1	100	5 00	95 00
Cornwall, - - -	1,283	603,819	—	741	741	1.2 "	57.8	—	—	—	—
Goshen, - - -	972	541,111	—	438	438	0.8 "	45.0	—	—	—	—
Harwinton, - - -	943	424,320	—	1,100	1,100	2.6 "	1 16.7	—	—	—	—
Kent, - - - -	1,383	439,395	503	412	915	2.1 "	66.2	1	100	5 00	95 00
Morris, - - - -	584	337,101	—	605	605	1.8 "	1 03.6	—	—	—	—
New Hartford, - -	3,160	1,083,048	800	1,628	2,428	2.2 "	76.8	5	1,000	50 00	950 00
Norfolk, - - -	1,546	950,969	363	1,144	1,507	1.6 "	97.5	1	12	60	11 40
North Canaan, - -	1,683	652,570	—	3,138	3,138	4.8 "	1 86.5	2	24	1 20	22 80
Plymouth, - - -	2,147	988,851	640	1,025	1,665	1.7 "	77.5	2	24	1 20	22 80
Roxbury, - - -	936	427,269	—	378	378	0.9 "	40.4	—	—	—	—
Salisbury, - - -	3,420	1,814,572	1,883	*2,622	4,505	2.5 "	1 31.7	2	24	1 20	22 80
Sharon,- - - -	2,149	1,267,544	1,139	538	1,677	1.3 "	78.0	3	300	15 00	285 00
Thomaston, - - -	3,278	1,504,256	—	*1,942	1,942	1.3 "	59.2	9	1,800	90 00	1,710 00
Torrington, - - -	6,048	4,672,913	2,117	*2,815	4,932	1.5 "	81.5	14	3,450	172 50	3,277 50
Warren, - - -	477	222,804	—	469	469	2.1 "	98.3	—	—	—	—
Washington,- - -	1,633	993,736	—	1,206	1,206	1.2 "	73.9	—	—	—	—
Watertown, - - -	2,323	1,386,381	—	1,081	1,081	0.8 "	46.5	—	—	—	—
Woodbury, - - -	1,815	896,267	—	2,358	2,358	2.6 "	1 29.9	2	24	1 20	22 80
	53,542	$28,534,267	$12,721	$33,054	$45,775	1.64 "	$0 85.49	77	$12,620	$631 00	$11,989 00

*Included in this amount for Sick and Insane: Salisbury, $922; Thomaston, $677; Torrington, $991.

MIDDLESEX COUNTY.

Towns.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for all Poor Outside of Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Liquor and Beer Licenses for Year Ending June 30, 1895. Total No. Licenses.	Total Amount Received.	Paid to County Treasurer.	Paid to Town Treasurer.
Middletown, - -	15,205	$ 8,570.149	$ 4,010	*$11,884	$15,894	1.8mills	$1 04 5	56	$11,900 00	$595 00	$11,305 00
Haddam, - - -	2,095	636.825	459	865	1,324	2.1 "	63 2	—	—	—	—
Chatham, - -	1,949	678.943	463	1,146	1,609	2.4 "	82 6	1	12 00	60	11 40
Chester, - - -	1,301	479,909	—	509	509	1.6 "	39 1	—	—	—	—
Clinton, - - -	1,384	694,793	—	1,089	1,089	1.6 "	78 7	1	12 00	60	11 40
Cromwell, - -	1,987	993,742	2,620	1,018	3,638	3.7 "	1 83 1	—	—	—	—
Durham, - - -	856	449,399	—	346	346	0.7 "	40 4	—	—	—	—
East Haddam,- -	2,599	1,067,243	1,183	932	2,115	1.9 "	81 4	7	566 67	28 33	538 34
Essex, - - -	2,035	829,252	36	1,581	1,617	1.9 "	79 5	1	12 00	60	11 40
Killingworth, - -	582	189.380	—	900	900	4.8 "	1 54 6	—	—	—	—
Middlefield, - -	1,002	450,444	—	450	450	1.0 "	44 9	—	—	—	—
Old Saybrook,- -	1,484	605,942	—	652	652	1.8 "	43 9	9	641 67	32 08	609 59
Portland,- - -	4,687	1,901,139	2,697	4,232	6,929	3.7 "	1 47 8	15	2,952 00	147 60	2,804 40
Saybrook, - -	1,484	687,420	—	416	416	0.6 "	28 0	—	—	—	—
Westbrook, - -	874	484,308	—	378	378	0.8 "	43 2	—	—	—	—
	39,524	$18,718,888	$11,468	$ 26,398	$37,866	2.02 "	$0 95 80	90	$16,096 34	$804 81	$15,291 53

Included in this amount for Sick and Insane: Middletown, $4,114; Portland, $1.205.

TOLLAND COUNTY.

Towns.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for All Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Liquor and Beer Licenses for Year Ending June 30, 1895.			
								Total No. Licenses.	Total Amount Received.	Paid to County Treasurer.	Paid to Town Treasurer.
Tolland, - -	1,037	$ 408,375	—	$ 846	$ 846	2.1 mills	$0 81.6	—	—	—	—
Andover, - -	401	218,566	—	186	186	0.8 "	46.4	—	—	—	—
Bolton, - -	452	168,930	—	451	451	2.7 "	99.8	3	$ 300	$ 15 00	$ 285 00
Columbia, - -	740	247,449	—	511	511	2.1 "	69.1	—	—	—	—
Coventry, - -	1,875	627,091	$1,426	616	2,042	3.3 "	1 08.9	—	—	—	—
Ellington, - -	1,539	719,361	612	420	1,032	1.4 "	67.1	6	400	20 00	380 00
Hebron, - -	1,039	428,848	252	336	588	1.4 "	56.6	—	—	—	—
Mansfield, - -	1,911	537,319	1,100	420	1,520	2.8 "	79.5	—	—	—	—
Somers, - -	1,407	641,476	812	876	1,688	2.6 "	1 19.9	—	—	—	—
Stafford, - -	4,535	1,263,654	938	2,378	3,316	2.6 "	73.1	3	36	1 80	34 20
Union, - -	431	120,616	—	240	240	1.9 "	55.7	—	—	—	—
Vernon, - -	8,808	3,057,319	3,038	* 9,223	12,261	4.0 "	1 39.2	34	8,290	414 50	7,875 00
Willington, -	906	202,141	—	443	443	2.2 "	48.9	—	—	—	—
	25,081	$8,641,145	$8,178	$16,946	$25,124	2.91 mills	$1 00.17	46	$9,026	$451 30	$8,574 70

*Included in this amount for Sick and Insane: Vernon, $2,564.

SUMMARY FOR THE STATE.

COUNTIES.	Population, Census 1890.	Grand List, 1895.	Cash Expended for Almshouse Support, 1895.	Cash Expended for all Poor Outside Almshouse, 1895.	Total Cash for Support of Poor, 1895.	Tax upon Grand List for Support of Poor, 1895.	Tax per Capita of Population for Support of Poor, 1895.	Total paid for Liquor & Beer Licenses, 1895.	Total No. Licenses, 1895.
Hartford, - -	147,180	$100,252,839	$ 60,979 00	$128,779 00	$189,758 00	1.89 mills.	$1 28.92	*106,746 00	493
New Haven, - -	209,058	118,462,571	75,775 00	127,907 00	203,682 00	1.72 “	97.43	*279,139 00	1,135
New London, -	76,634	38,163,889	24,470 00	52,266 00	76,736 00	2.01 “	1 00.13	† 52,388 00	224
Fairfield, - -	150,081	113,675,970	41,568 00	121,606 00	163,174 00	1.44 “	1 08.72	193,654 00	722
Windham, - -	45,158	17,872,358	12,322 00	25,667 00	37,989 00	2.13 “	84.12	‡ 12,944 00	56
Litchfield, - -	53,542	28,534,267	12,721 00	33,054 00	45,775 00	1.64 “	85.49	12,620 00	77
Middlesex, - -	39,524	18,718,888	11,468 00	26,398 00	37,866 00	2.02 “	95.80	16,096 34	90
Tolland, - -	25,081	8,641,145	8,178 00	16,946 00	25,124 00	2.91 “	1 00.17	9,026 00	46
Total for State, -	746,258	$444,321,927	$247,481 00	$532,623 00	$780,104 00	1.76 mills.	$1 04.54	$682,613 34	2,843
Total for Year 1893,	746,258	380,939,706	223,738 00	513,260 00	736,998 00	1.93 “	0 98.76	824,003 27	2,668

*Paid to Police Fund, $6,447.00; to Firemen's Fund, $6,447 01.

†Nineteen Licenses Transferred, $38.00 additional.

‡Eight Licenses Transferred, $16.00 additional.

PRIVATE PROVISION
FOR THE
AGED, INDIGENT AND INFIRM.

An account is given below of Homes in the State which, in addition to the public institutions provided, furnish accommodations for the care of aged and infirm men and women.

The Homes have, as a rule, been duly incorporated and are supported in some cases by private charity alone, and in others by the receipts from entrance fees and payments for board.

THE OLD PEOPLE'S HOME, HARTFORD.

MR. LEANDER HALL, *Superintendent;* MRS. E. J. FOX, *Matron.*
Visited in March, 1896.

The Old People's Home is under the same management as the Hartford Hospital and was organized by an act of the General Assembly in 1873, amending the Hospital's charter for that purpose. An attractive three-storied building of brick and stone was erected for the use of the Home on Jefferson Street opposite the Hospital grounds, and has accommodations for eighty-five inmates. On the first floor are the offices, reception-room, and rooms for men; the upper floors are reserved for women.

Applicants for admission to the Home must be citizens of Hartford County, persons of good character, not under sixty years of age, and in reduced circumstances. Applications of late have exceeded so greatly the means of the Home to support them that it has been necessary to raise the admission fee to $1,000 for permanent inmates. A few boarders are received at fixed sums per week. The number of inmates at the date of visit was sixty-five, fifteen men and fifty women.

Although managed with due care and economy, it is impossible for the Home to be self-supporting and the admission fee will of necessity be kept high until such time as the Home shall be sufficiently endowed to provide an adequate income.

The rooms are large and well furnished, and everything is provided which will insure to the occupants the conveniences and comforts of a well-appointed home. The majority of the inmates are between the ages of seventy and ninety, and many among the number are suffering from the attending weaknesses and infirmities of old age, but under the influence of cheerful surroundings and pleasant companionship they live the remainder of their lives in quiet contentment, and in the performance of light tasks suited to their tastes and ability. Religious services are held on Sunday afternoons and are conducted in turn by clergymen of different denominations.

The friends of inmates and the public generally, may visit the Home on Thursdays between the hours of 10 and 12 o'clock A. M., and from 2 to 4 P. M. At other times visitors will be admitted only by permission of the Superintendent or matron.

THE CHURCH HOME,
HARTFORD.

MRS. M. F. WEEKS, *Superintendent.*
Visited in December, 1896.

The Church Home of Hartford was incorporated in 1876 and is controlled by a Board of Managers which is composed of representatives from each of the Episcopal churches of the city. It is located at No. 76 Bellevue Street, near Pavilion Street, and is three blocks distant from the electric cars on Main Street.

The building now in use was formerly a private dwelling house, and as it is not conveniently arranged in all respects, it is hoped to erect soon a new building, especially designed for the purpose, on an adjoining part of the property.

The object of the Home as stated in the constitution, is to provide maintenance for such aged and infirm persons as it may receive and have under its care, and to establish and carry on such other branches of charitable and reformatory work as may be deemed expedient. Such aged persons or others may be admitted to the privileges of the institution as the Board of Managers may deem fit, and on such terms and conditions as the Board may establish. The usual entrance fee is $400.00 for permanent inmates.

The Home has accommodation for twelve inmates, and is under the immediate charge of Mrs. Weeks, the resident Superintendent. Religious services are conducted by the chaplain twice a month.

An annual report of the Home is published, giving the names of officers, house rules, etc., and a detailed statement of the entire receipts and disbursements from the time of its organization to date of report. The number of inmates at date of visit was nine.

THE LAWSON C. IVES WIDOWS' HOME, HARTFORD.

Visited in December, 1896.

The Home was founded in 1864, and occupies two large brick houses at 848 and 850 North Main Street. Each house contains twelve tenements, of three rooms each, which are let to occupants at a monthly rate of $2.00 for front and $1.50 for back rooms. Each tenant furnishes her rooms to suit herself, and does her own housework.

All the suites of apartments are occupied and applications for vacancies are on file. The Home is under the auspices of the Pearl Street and Park Street Congregational Churches.

THE WIDOWS' HOME,
HARTFORD.

Visited in December, 1896.

The Widows' Home was established in 1854, and occupies the original building at 133 Market Street, about one block east from Main Street. The Home contains twelve suites of apartments of three rooms each. The inmates do their own work, live independently and pay a rental of about $2.00 per month.

The Home is under the management of the Episcopal Church, and is designed for worthy but indigent women of that denomination. The apartments are all filled and applications for vacancies are on file.

ST. MARY'S HOME FOR THE AGED,
WEST HARTFORD.

Visited by Miss Hall and Mr. Kellogg.

St. Mary's Home is located on Albany avenue about three miles from Hartford and stands at a point from which there is unusually fine and unobstructed view of diversified country. It is under the sole charge of the Sisters of Mercy, fifteen of whom have entire care of the Home and its inmates.

The Home was opened in October, 1880, and the demand for admission increased so greatly in recent years that it was found necessary to erect a new and more commodious building. This was completed and first occupied in April, 1896, and is a handsome structure of brick and brownstone, three stories in height with a high basement entirely above ground. It consists of two parts, of which the central or administration building contains the reception-rooms, quarters for the Sisters, a beautifully appointed chapel, dining-rooms for men and women, kitchen, laundry, etc. The domestic departments are equipped with the most approved labor-saving apparatus, and like all other parts of the Home, are models of cleanliness and good order. The north wing contains sixty-five single rooms for aged women, all of which were occupied at the date of visit. A pleasant sitting-room is provided on each floor, as well as convenient bath and toilet rooms, and a comfortable infirmary is reserved for those who are feeble or ill. The whole building is heated by steam and lighted by gas, and is provided with easily accessible fire-escapes.

Plans are already under consideration for the erection in the near future of another wing to adjoin the administration building on the south for the use of old men. These are now quartered in the original building which has accommodations for twenty-five inmates; there were sixteen present at the date of visit.

There are no restrictions in regard to the residence or age of applicants for admission. An entrance fee of $1,000 is required of all permanent inmates who have sufficient means, and others who are able to pay are boarded at the rate of $3.50 a week; a considerable number, however, of the inmates are supported free of charge.

A valuable farm of one hundred and sixteen acres is connected with the Home, and the men whose health will permit assist in its cultivation. Large supplies of vegetables and general farm produce are raised annually.

The Home is not endowed, and has not yet been in receipt of annual subscriptions of fixed amounts, nor of a yearly donation day offering. It depends for its support upon what the inmates are able to pay, upon the sale of its farm supplies and upon funds raised by the Sisters of Mercy. It is the only Roman Catholic institution of its kind in the State.

THE ERWIN WOMAN'S HOME,

NEW BRITAIN.

Visited in February, 1896.

The Erwin Home was established in accordance with a provision of the will of the late Mr. Cornelius B. Erwin, who designed it as a home for worthy but indigent women of the town of New Britain. It was opened on May 1, 1892.

The Home is located on the corner of Bassett and Ellis Streets in a quiet part of the city, and consists of a series of suites of apartments having separate entrances; they are all under one continuous roof and are connected by broad corridors to which the suites have direct access. The original building had twenty-four such suites of two rooms each, but owing to the demand for admission, an addition of six suites was erected in 1894. Each occupant keeps house independently; she furnishes her room herself, has her own stove and sink, cooks her meals and does her own house-work. Lighting and steam heat are provided by the trustees for the halls and public parts of the building, and can be supplied to the private suites if required.

Applicants for admission must be endorsed by some responsible person or society, and persons so admitted are required to serve one month on probation. Tenements are let for one year, or for a term less than one year, and are practically free, with the exception of a nominal charge for rental of less than $2.00 per month. By the terms of the founder's will, the management is in the hands of the pastor and standing committee of the South Congregational Church of New Britain, who were incorporated by an act of the General Assembly of 1893 for the purpose of controlling the affairs of the Home.

THE ELLEN M. GIFFORD HOME FOR INCURABLES, NEW HAVEN.

MR. J. H. STARKWEATHER, *Superintendent.*

Visited in May, 1896.

The Home was opened on July 14, 1892, and is under the management of the Directors of the General Hospital Society. It occupies a building which is practically independent, having a free exposure to light and air on three sides, but on the eastern end is connected by a wide corridor with the main building of the New Haven Hospital on the right, and with the Gifford Chapel on the left. A bronze tablet bearing the following inscription has been placed on the wall in the main corridor of the Home:

ELLEN M. GIFFORD HOME FOR INCURABLES
was founded in 1889 under the will of
ELLEN MARTHA GIFFORD,
the only child of Philip Marett of New Haven,
and is supported by funds bequeathed
in part by each.

The building is divided into two wards for men and women respectively, and accommodates forty-four patients in all. One end of each ward is conveniently fitted up with surgical cabinets, pantry, linen closets, nurses' dining-room, etc., and the other forms an attractive semi-circular sitting-room, which is enclosed with glass and serves as a sun parlor.

The Gifford fund is a charity fund and the income may be used for the support of poor patients only. It is designed in particular for patients who are suffering from incurable diseases which require and may be alleviated by skillful nursing and medical treatment.

In 1894 free support and treatment were furnished to forty-eight patients amounting to nine hundred and eighty weeks, and in 1895 to fifty-nine patients for a total of nine hundred and fifty-seven weeks.

THE HOME FOR THE FRIENDLESS, FAIR HAVEN.

MISS M. J. SLATER, *Matron.*

Visited in September, 1896.

The object of this institution is to provide a temporary home for friendless and homeless women and girls who through necessity or crime have no other refuge, and to give them employment and instruction with the ultimate design of providing for them a more permanent situation, and of fitting them to maintain themselves. Other classes of people are also helped. A recent printed report states that invalids whose money was exhausted have been given the rest they needed before they could go back to work, and women with little children whose destitution was only temporary have been cared for during a few weeks, until the husband or father could work and again assume the support of his family. It is the only free, nonsectarian home for aged women in the State.

The Home was incorporated in June, 1867, and is governed by an advisory board and a board of managers, consisting of representatives from each church in the city. It is located at the corner of McClintock Avenue and Pine Street and may be reached by a short walk from the Fair Haven line of electric cars. The building consists of an old wooden house and annex, and a brick wing of more modern construction which is reserved for old ladies over seventy years of age and has accommodations for nine persons. Plans have been adopted for the erection of a new building of brick to take the place of the old wooden house and annex, which will provide materially increased accommodations that have long been needed; it is expected to begin work in the spring.

There is no positive restriction in regard to place of residence, but the preference for admission is given to applicants who are residents of New Haven. There were twenty-eight adults present at the date of visit. All inmates who are able to do so are under obligations to pay a small sum weekly for board. The Home is supported by an income from a small endowment fund, by annual subscriptions, and by a yearly "donation day" contribution. The house is well appointed and the aim of the management is to make its inner life homelike and elevating.

THE OLD LADIES' HOME, NEW HAVEN.

MRS. HARRIET A. SCRANTON, *Matron.*

Visited in September, 1896.

The Home, which is located at 124 Wall Street, has accommodations for twelve inmates, and was opened in 1871. It is under the management of a committee of the Center Church and is intended for aged and destitute women who are resident members of that church in New Haven.

Women without resources are supported free of expense, but it is required that those inmates who are able to do so shall pay $4.00 per week for board. As opportunities are offered through vacancies in the Home, women from other churches may be received on payment of the same weekly rate. It is a bright, pleasant Home, suitable in size and appointments, and is well maintained under the attentive care of the matron, who has been in charge since it was opened. The number of inmates at date of visit was nine.

THE TRINITY CHURCH HOME,

MISS ELIZABETH T. SMYTHE, *Matron.*

Visited in September, 1896.

The Home is located at No. 303 George Street, and was built in 1868 and conveyed in trust to the corporation of Trinity Church under a provision of the will of the late Mr. Joseph E. Sheffield. It was created for the purpose of establishing and maintaining in the city of New Haven a refuge for the poor and friendless members of Trinity parish, and such others as the Board of Managers may think entitled to its benefits.

The Home contains rooms for twenty inmates, and is comfortably furnished and provided with modern conveniences. Members of other religious denominations may also be admitted, but in such cases it is required that a fixed sum per week shall be paid for their support. The number of inmates at date of visit was fifteen. Religious services are held every week by the chaplain in the Home and also in the Chapel which is situated between the Home and the Parish School.

THE CURTIS HOME,

MERIDEN.

MISS HANNAH K. PECK, *Matron.*

Visited in October, 1896.

The Curtis Home was founded in accordance with a provision of the will of the late Mr. Lemuel J. Curtis, its object being to found a home for aged and indigent women. The Home is under the control of St. Andrew's Episcopal Church of Meriden, whose rector, wardens and vestrymen were incorporated for the purpose in 1885. The corporation annually appoint a Board of Managers, composed of representatives from all of the Protestant churches of the city, who have general charge of the internal affairs of the Home through a number of committees.

The conditions for the admission of applicants are that they shall be over sixty years of age, and shall have lived in the town of Meriden for at least one year prior to the date of application; it is also required that they shall be in good mental and bodily condition, and shall serve a probationary term of three months. No charge is made for support, but when admitted to permanent residence inmates must convey such property as they possess to the institution.

The Home is finely situated on a hill at the end of Crown Street, about a mile south from the center of the city, and commands a widely extended view to the south and west. The building is a handsome structure of yellow brick in the Colonial style, and is three stories in height with a central portion of four stories. It was designed especially for the purpose and was first occupied in April, 1896. Attractive reception-rooms, dining-room and chapel occupy the first floor, while the upper floors are devoted to private apartments for the inmates, the fourth floor being reserved for use as a hospital. All departments are finished in the most complete manner and are equipped with every appliance for the comfort and convenience of the inmates. A passenger elevator furnishes easy access to the upper floors, and the heating, ventilating and plumbing systems are of the most approved design. The kitchen and other domestic departments are situated in a semi-detached wing, and the main building is provided with a fireproof hall and stairway.

The Home has accommodations for thirty inmates and is amply endowed. At the date of visit there were thirteen aged women enjoying its advantages.

THE SMITH MEMORIAL HOME, NEW LONDON.

MRS. JOHN SIZER, *Matron.*

Visited in January, 1896.

The Home occupies a large house pleasantly situated at the corner of Union and Masonic Streets directly opposite the City Hall. It was the gift of Dr. Seth Smith and is designed as a Home for the needy and respectable poor women of New London. It was opened for use in December, 1885, and has accommodations for thirty inmates. The control of the Home is vested in a self-perpetuating Board of Trustees composed of six gentlemen of the city, and is entirely non-sectarian in its character.

Applicants for admission must have resided in New London for at least five years, and must be not less than sixty-five years of age, except in special cases to be determined by the Trustees. Persons accepted as inmates are required to pay an entrance fee of $100.00 and to convey to the Home all property owned by them.

The institution is liberally endowed and the annual income is more than sufficient to meet the current expenses. Part of it is derived from an adjoining apartment house and a cottage which may be used to increase the capacity of the Home when needed. The rooms are pleasant and comfortably furnished, and everything is done by the management to make the Home attractive. There were fifteen inmates at the date of visit, the smallest number that has been present for some time.

THE ELIZA HUNTINGTON MEMORIAL HOME, NORWICH.

MISS ADELAIDE GORTON, *Matron.*

Visited in February, 1896.

The Home is located at No. 99 Washington Street and occupies a pleasant old-fashioned house surrounded by attractive grounds. It was formerly the residence of Mr. Jedediah Huntington whose generosity established the Home as a memorial to his wife. The original endowment has been increased until it now amounts to about fifty thousand dollars and the income from this largely supports the Home.

The inmates are limited to eight old ladies, each of whom must be not less than sixty years of age and must pay an entrance fee of $500.00. Applicants for admission must be residents of Norwich at the time of entrance, or must have lived in the city previously. The Home is non-sectarian in character.

ST. JOHN'S HOME, STAMFORD.

Miss M. C. Moore, *Matron.*

Visited in February, 1896.

The Home is a separate department of St. John's Hospital and Home. It occupies a part of the same building, and is maintained in connection with St. John's Protestant Episcopal Church for the care of the aged and infirm and of orphaned and destitute children. Admission is granted by vote of the trustees.

THE HARRIET MAKINSTER HOME, MIDDLETOWN.

Miss H. E. Forbes, *Matron.*

Visited in April, 1896.

The Home was established in 1860 under the name of St. Luke's Home, and in 1892 was moved into a new and commodious building on the corner of Pearl and Liberty Streets, the fund for which was given by Mrs. Harriet M. Makinster. Since that time the house has borne her name.

It is an attractive, three-storied structure of brick and has accommodations for fourteen inmates. The rooms are comfortably furnished, and no pains have been spared to make it a bright, cheerful and well-conducted Home. At the date of visit all the rooms were occupied, and it is hoped to enlarge the house in the near future.

The liberality of its management is shown in the provision that aged and destitute women may be admitted without regard to their place of residence or creed. As a rule, no inmates are received under sixty-five years of age. No entrance fee is charged, but each inmate is expected to pay something towards her board. Full board is placed at the sum of $3.50 per week, but the management have authority to receive persons at lower rates in special cases. In such event, however, it is agreed that the inmate shall give to the Home all funds which she may have or acquire.

The Home is supported by annual subscriptions and private contributions, and is under the management of trustees and a board of seventeen lady managers. The latter serve as visitors to the Home, two every month in turn, and each member calls twice a week during her month of service.

RIGHTS OF SELECTMEN WITH REGARD TO DEPENDENT CHILDREN.

With reference to the authority of Selectmen in the case of dependent children, it is provided by the General Statutes in Section 1740 that:

> "If any person who has had relief from any town shall suffer his children to misspend their time, and shall neglect to employ them in some honest calling, or if any person does not provide competently for his children, whereby they are exposed to want, or if any poor children in any town live idly or exposed to want, and there are none to take care of them, the Selectmen of such town, with the assent of a Justice of the Peace, shall indenture such children to be apprentices to some proper trade for said term; and may indenture them in like manner, to any society, incorporated for the purpose of educating and relieving orphans or destitute children, whose place of business is in this State, and may contract with such society, to defray wholly or in part, the expenses of such child while in the institution, to an amount not exceeding $1.50 per week; and such society shall have the same authority with regard to such children as over those surrendered to them by their parents."

The Hartford and New Haven Orphan Asylums have power and authority to accept a surrender in writing by the father, or when there is no father, by the mother or guardian, or from the Selectmen, under the written approval of the Judge of Probate for the district, of any indigent child, as described in the act aforesaid.

These Asylums have also the right to indenture for adoption or apprenticeship any such child or children thus surrendered to their care and control.

PRIVATE PROVISION FOR THE YOUNG.

ASYLUMS AND HOMES,

Holding, with but few Exceptions, Charters from the State.

THE HARTFORD ORPHAN ASYLUM (PROTESTANT), HARTFORD.

REV. AND MRS. GEORGE DUSTAN, *Superintendent and Matron.*

Visited by Miss Hall and Mr. Kellogg.

The Asylum has a commanding location in a large lot in the southwestern part of the city, on Putnam Street, and may be easily reached from the Parkville or Zion Street lines of electric cars. It is a commodious brick building of attractive design, and stands on an eminence well back from the highway. A charter was first granted to the incorporators in 1833. The original charter, however, was revised in 1865, when the Hartford Orphan Asylum and the Hartford Female Beneficent Society were united into one institution, called the Hartford Orphan Asylum.

The institution is designed for the protection and education of orphans, half-orphans and neglected and destitute children of the City of Hartford of any age up to twelve years, and has the power and authority to make such provision for the temporary support and maintenance of poor and indigent children as may be found necessary and expedient. Children from out of town may be received as the accommodations permit, on the payment of the full amount of a fixed weekly rate.

An average number of eighty-five boys and girls attend the public school on Lawrence Street. They begin in the kindergarten department, and are from five to six years in completing the school's course. A few who are sufficiently advanced pursue their studies in either the upper grades of the South District School or the Hartford Public High School.

During the past year the average number of inmates has been 118, including 56 boys, 48 girls, and fourteen infants in the nursery; of the whole number 20 have been supported entirely by the Asylum.

The girls assist in the performance of minor household duties in the dormitories and dining hall, and during vacation time receive two hours' instruction in sewing daily, Saturdays excepted. The boys also help in various departments of housework, and under the guidance of the Superintendent, work in the home garden during the summer vacation and raise a large variety of vegetables.

Children are placed out in family homes by indenture, or given in adoption as opportunities are found, great care being exercised to prevent placing in any but well recommended families.

A room in the upper part of the building (connected with the dining-room by a dumb waiter) is used as a hospital, and answers the purpose fairly well, although the experience of recent years has shown that a detached building for this purpose would be preferable. At the time of building, preparations were made in the plan so that an elevator could be added when desired. As a convenient means for saving steps in such a large institution, an elevator is a pressing necessity, but owing to lack of sufficient funds, it has not yet been possible to provide one.

Devotional exercises are held on week-day mornings and evenings, and religious services and Sunday school on Sunday afternoons.

Two members of a committee of the Board of Lady Managers visit the institution officially once a month. The Asylum is chiefly supported by the income from invested funds and by annual contributions. The total receipts for the year 1894-95, as stated in the report, were $14,121.79, or nearly $1,700.00 less than the expenses during the same period. An arrangement is in force with the town of Hartford under which orphans and destitute children are cared for at a fixed sum per week. For the fiscal year ending in May, 1895, the number thus supported was 26, for whom the town paid $1,891.00.

The building is complete in its appointments, elevator excepted. The various departments are in a state of perfect order and cleanliness, and the institution in all particulars reflects a standard of superior management. The sixty-second annual report with detailed statement of receipts and disbursements was published in June, 1895.

THE WATKINSON JUVENILE ASYLUM AND FARM SCHOOL,

HARTFORD.

MR. E. B. SMEAD, *Principal.*

Visited in April, 1896.

The School was established under a provision of the will of the late Mr. David Watkinson, and was first opened in an experimental way in 1884 on the property at the corner of Putnam and Park Streets, adjoining that of the Hartford Orphan Asylum. The object of the School is to care for and instruct worthy homeless boys and boys in danger of acquiring habits of vice and crime. They are not formally committed according to the usual process. They show their desire to enter by applying to the managers for admission, and on approval of their applications are enrolled as inmates. The ages at which they are received are, as a rule, between twelve and fourteen.

Through the liberality of a Hartford gentleman a valuable farm of one hundred and twenty-five acres, located at the corner of Albany and Bloomfield Avenues about two and a half miles northwest from the center of the city, was afterward purchased and put into a favorable condition for tillage. The farm now bears the name of the Handicraft Farm, and is under the management of a board of trustees, whose object is to establish schools in connection therewith, which will afford the inmates an opportunity to combine life and work upon a farm with instruction in English branches, and in departments of manual training in the common handicrafts of life. It is believed that this plan will further the work of the Watkinson Farm School, and that it will be of lasting benefit to such boys as may choose to come as day pupils.

For a nominal consideration a sufficient portion of the farm has been leased in perpetuity to the trustees of the Watkinson Farm School for its use, and an attractive brick building has been erected thereon from the School's funds, thus making the institution the first of the Handicraft Schools. This new building was first occupied in July, 1895, and provides comfortable accommodations for sixty boys. All departments are exceptionally well-arranged and are provided with improved systems of heating, lighting and ventilation.

A distinguishing feature of the institution is its home-like character; the boys are made to feel that they are members of a common family, and that they are expected to share in the varied duties and responsibilities of domestic life. They begin by taking care of their own rooms and clothes, and from that they pass on to the care of the halls, dormitories, dining-room, school-room, heating apparatus, etc. When their training in the latter course is finished they are given charge of the different classes of live stock. There is daily instruction in the common English branches in a school-room on the premises, and a portion of the time is also spent according to a fixed schedule in doing general work upon the School farm and garden. Model barns, piggery, and poultry houses are part of the School's equipment, and a carpenter's shop has recently been opened in a building on the Handicraft Farm where practical instruction is given to the boys in wood-working and the use of tools.

At the date of visit there were twenty-five pupils present in the School. Parents or friends when able to do so pay a nominal sum, from $1.00 to $2.00 per week. Several of the boys who have graduated have successfully passed the entrance examinations and taken a course at Storr's Agricultural School.

The management do not lose sight of the pupils after they have left the School, but keep in touch with them by interchange of visits and correspondence and continually exercise a paternal care in regard to their welfare. It is pleasant to note that the boys who have graduated from the School have formed a plan for maintaining their interest in the institution, and for preserving early recollections and friendship, by organizing an alumni association, with a list of officers, regulations, etc., and by holding annual reunions at the School Home.

ST. JAMES'S ASYLUM (ROMAN CATHOLIC), HARTFORD.

Under the direction of the Sisters of Mercy; Very Rev. John Mulcahy, V. G., Superintendent.

Visited by Miss Hall and Mr. Kellogg.

This institution is located on Church Street in a central part of the city, and occupies the westernmost of three buildings which formerly comprised the dual establishment of St. Catherine's Girls' Orphanage and St. James's Asylum for Boys. Within the past year the greater part of the inmates have been transferred to St. Francis' Asylum in New Haven which is now designed to receive children of Roman Catholic families from all parts of the State.

Under the new arrangement it is the intention to limit St. James's Asylum, so far as possible, to the reception of children from the church parish with which it is connected. The easternmost building is now occupied entirely by the Sisters of Mercy and is called St. Catherine's Convent, while the central building, which was designed as a hospital, is devoted to various uses of the parish.

The inmates include orphans, half orphans and children of dissipated and neglectful parents, and numbered nineteen at the date of visit, six girls and thirteen boys. The earliest age at which children are received is two years, and the usual system is followed of placing them in family homes as opportunity offers. The inmates attend the parochial school on Allyn Street. The average rate of board in the Asylum is about $6.00 a month, and an annual appropriation of $500.00 has been received from the town of Hartford.

NEW HAVEN ORPHAN ASYLUM (PROTESTANT), NEW HAVEN.

MISS GRACE L. KELLEY, *Matron.*

Visited in April, 1896.

This Asylum was chartered by the State in 1833 and was established for the protection and education of orphans, half-orphans and homeless and destitute children. The charter provides that the children must be residents of the town of New Haven, and that none shall be received who are over ten years of age. It is under the control of a board of nine trustees, citizens of New Haven, and of a board of sixty lady managers who visit the Home at regular intervals and have a general oversight of its internal management.

The regular expenses are met by the income from endowment funds, by annual subscriptions, and by a ''donation day'' contribution which is received every year in the autumn. In 1895 this amounted to about $6,000.00, and included also a large variety of useful articles, such as books, toys, clothing, household supplies, utensils, etc. The town of New Haven appropriates $2,000.00 annually towards the Asylum's expenses and may in turn exercise the right to send to the institution such children as are legally chargeable to the town. The total receipts, as given in the Treasurer's report for the year ending May 15, 1895, were $15,885.84.

The Asylum, which is a commodious brick building and was first occupied in 1855, is situated in a spacious enclosure of six acres comprising the block bounded by Elm, Beers and Platt Streets and Edgewood Avenue; electric cars pass the grounds. A part of the property is used as a play-ground for the children. The Asylum has accommodations for about one hundred and forty inmates, and the average number during the year 1894-95 was one hundred and thirty-six. The children attend school in a detached building on the grounds. The teachers are engaged by, and the school is under the supervision of the State Board of Education. The same terms and holidays are observed as in the public schools. In addition, the girls are given one-half day's exercise in sewing each week under competent instructors, and the boys are taught the use of tools in a carpenter's shop. In another part of the Asylum yard stands a hospital building which is intended for children suffering from contagious diseases. Up to the present time, however, it has seldom been found necessary to use it for this purpose.

The Nina-Lynette Nursery for infants, which was given as a memorial by friends of the institution, is an attractive cottage located in one corner of the grounds and has accommodations for twelve inmates. Here infants are retained until they reach the age of two and a half years, when they are transferred to the main building.

When the children reach the age of twelve years an effort is made to place them in selected family homes, and after they have been so placed the intention is to visit them once a year, or to have them visit the Asylum, until they reach the age of eighteen.

All the departments of the Asylum are admirably clean and in good order, and bear evidence of being under careful and experienced management.

ST. FRANCIS' ORPHAN ASYLUM (ROMAN CATHOLIC), NEW HAVEN.

REV. J. F. CORCORAN, *Treasurer.*

Visited in April, 1896.

The Asylum is favorably located on St. Ronan Street, leading off from Whitney Avenue. It stands on high ground and commands an extensive view of the eastern portion of the city. It first existed as a private parochial institution, which was founded in 1852 by the Rev. E. J. O'Brien. In 1864 the present property was purchased, and in June, 1865, the institution was regularly incorporated under the laws of the State. It is designed for the reception and care of orphans, half-orphans and homeless and destitute children, whose parents are of the Roman Catholic faith. Children are received from all parts of the State, but those living outside Connecticut are not eligible.

At the time of a child's admittance it is required that there shall be a written communication with reference thereto from either a parish priest or one of his subordinates, or from the town authorities, to the end that responsibility for the payment of the child's board may be definitely secured; one hundred dollars a year is the usual charge for each inmate. As a rule children are between the ages of three and seven when sent to the Asylum; none under two years of age are received. The inmates attend school on the premises, and enjoy the advantages of six large and well-appointed school rooms. The girls are also taught sewing, and assist in the kitchen, laundry and bakery work, according to their age and capacity. The boys sweep and dust and derive much pleasure in the performance of these and other minor duties.

The Asylum receives an annual appropriation of $2,000.00 from the town, and in return gives support to a large number of children who are committed to it by the town authorities. It has the use also of an income from invested funds which it has received from time to time in the form of bequests, and is materially helped by annual subscriptions, and a "donation day" contribution of cash and generous gifts of toys, books, clothing, etc.

Owing to the steady increase in the number of inmates in recent years, it became necessary to enlarge the Asylum by the addition of a large wing which was completed and occupied in the spring of 1896. This is substantially built of brick, is three stories in height, and contains additional accommodations for one hundred and fifty inmates.

It is the practice of the management to place children in Roman Catholic families according to opportunity. In the case of those who have been committed by the town, written permission is first received from the Town Agent.

The various departments of the Asylum are kept in perfect order and cleanliness and bear marks of excellent management. The number of inmates at date of visit was 289. It has not been the custom to publish an annual report.

THE CHILDREN'S BRANCH OF THE HOME FOR THE FRIENDLESS,

FAIR HAVEN.

Visited in September, 1896.

The Children's Branch is a department of the Home for the Friendless and occupies the same building and is under the same management. Its purpose is to provide a home for young children, and for infants with their mothers. The number present at the date of visit was eight.

In a recent annual report, the following statement is made: "Twenty-three little children have been inmates of the Home at some time in the year, the number in the nursery at any one time seldom exceeding fourteen. These, as opportunity presented, have been placed in permanent homes, as it is not the purpose of the institution to provide more than temporary care for children. Only such children are taken as are ineligible for admission to the Orphan Asylums, and can find, for the time, no other home, and they are returned to their parents or guardians as soon as these latter are able to again properly care for them. In cases where parents or guardians are unable or unfit to longer have the custody of children, good homes are found for them by the managers of the Home."

The children's board is paid for either by friends or relatives, or by members of the Board of Management representing one of the city churches.

THE CHILDREN'S BRANCH OF THE CURTIS HOME, MERIDEN.

MRS. L. R. CAMPBELL, *Matron.*

Visited in October, 1896.

Since the completion of the new building for old ladies at the Curtis Home, the whole of the original house has been set apart for the accommodation of children, and is under the same general management. The rooms have been furnished with special reference to youthful tastes and requirements and are models of neatness and good order.

The general object is to provide home care and instruction for orphans and destitute children, with the ultimate purpose in view of fitting them to provide for self-support, and of opening a way to permanent employment. The conditions of admission are that the children to be received shall have lived in the town of Meriden for at least one year before the date of application, and that they shall not be less than two nor more than ten years of age. It is essential also that they should be in good mental and physical condition. Children may be received as boarders but not to the exclusion of those who are orphaned or destitute.

The children attend the public school in the neighborhood, and are expected to be present at the regular services at the Episcopal Church. The Home has accommodation for fifty inmates; thirty-five were under care at the time of visit. Everything that can contribute to their comfort and well-being is provided without charge.

THE ROCK NOOK HOME, NORWICH.

MISS A. D. HOLMES, *Matron.*

Visited in May, 1896.

This is a public charity which was established fourteen years ago and is conducted under the auspices of the United Workers Society. The house and seven acres of land were the gift of a gentleman of Norwich, and are situated on the Norwich Town line of electric cars about two miles north from the center of the city. A two-storied addition to the house was erected during the past year, and contains pleasant nurseries for day and night use and other convenient rooms.

The Home has accommodations for twenty-four children, and although there is no positive restriction, the intention is to limit admission to children between the ages of four and twelve. Preference is given to children of the town and city of Norwich. The inmates attend the public school, and at the date of visit numbered eighteen, eleven boys and seven girls.

It is the intention of the management to place the children in family homes so far as possible, and when so placed, they are kept under supervision until they reach the age of twenty-one years. In certain cases they are given in adoption. The Home is conducted on a non-sectarian basis and is doing excellent work.

BRIDGEPORT PROTESTANT ORPHAN ASYLUM, BRIDGEPORT.

MRS. WALTER WELLS, *Matron.*

Visited in September, 1895, and September, 1896.

The Asylum is located at No. 119 Lafayette Street, and is distant but two blocks from the Main Street line of electric cars. The house occupied was built for the purpose about 1868 and has never been enlarged. Manufacturing establishments have since been built in such close proximity that the noise from them causes serious annoyance during the summer months, and in addition no available space has been left for the children's playground.

In May, 1894, a piece of land comprising about two acres at the corner of Fairfield Avenue and Church Street in the Black Rock district was purchased, and plans were prepared for the erection of a new building having accommodations for one hundred children. Objections to this location have since been raised and the construction of the building has been postponed.

The present house was designed to accommodate thirty-five children, but the demand for admission has been so urgent that every available space has been utilized and from forty-five to fifty inmates on an average have been sheltered in recent years. Orphaned children are received at the age of three years and are kept at the Asylum until they are twelve years old, when the usual plan is followed of placing them out in family homes.

The officers of the Asylum consist of a Board of Trustees and a Board of Management of about forty ladies. The children attend school in the building and are also taught sewing and other useful branches. The Asylum is entirely supported by private charity, and for nineteen years has been under the devoted care of the present matron, Mrs. Wells.

THE DANBURY HOME FOR DESTITUTE AND HOMELESS CHILDREN,

DANBURY.

Miss E. A. Westerfield, *Matron.*

Visited in January, 1896.

This is a non-sectarian institution whose object, as stated in its constitution, is "to provide a suitable temporary home for orphans, homeless and destitute children, and to relieve and help to support, and to temporarily provide for and succor those children whose parents, guardians and relatives are unable to wholly support, maintain and educate them." It is under the direction of a Board of Management composed of eighteen men and women of the city, and has no endowment fund but depends for its support largely upon the gifts and subscriptions of its friends.

A few of the children are beneficiaries of the Home; the board of others is paid for by their friends or by the town at the rate of two dollars a week. Admission is not restricted to Danbury children, although in most cases they are given the preference. It is customary to return the children to their parents, guardians or friends as soon as their circumstances make it advisable to do so, or to place them out in family homes where watch is kept of their future development by the managers of the Home. Children under two years of age are not received.

The Home occupies a comfortable two-storied house situated on high ground not far from the center of the city, and is surrounded by a pleasant yard. There are accommodations for from fifteen to twenty inmates and at the date of visit eleven children were being cared for. All who are of suitable age attend the public school in the neighborhood.

THE CHILDREN'S HOME,
NORWALK.

MRS. JOANNA LEWIS, *Matron.*

Visited in October, 1895.

The Home was opened in 1879 and occupies the building formerly used as the Town Almshouse. It is situated about one-half mile west from the present almshouse, and is supported by the town of Norwalk for the benefit of such children as are destitute, neglected or badly treated.

The children attend the public school in East Norwalk and as opportunity offers are placed in suitable family homes. At the date of visit there were thirteen inmates, eleven boys and two girls of ages ranging from four to eleven years. The accommodations are plain but comfortable, and the children receive excellent care from the resident matron.

THE CHILDREN'S HOME,
STAMFORD.

MRS. C. L. CLARK, *Matron.*

Visited in February, 1896.

This is the most recently established of the private homes for children in the State, having been opened in December, 1895. It is under the direction of a committee from the

Charity Organization Society of the city, and is designed to care for any destitute or neglected children who may come under its charge. Parents do not relinquish control of the children when placed in the Home, but may withdraw them when circumstances render such action advisable.

A comfortable wooden house at No. 1 Oak Street in the northwestern part of the city has been leased for the uses of the Home, and may be reached by the Summer Street line of electric cars. There are accommodations for fifteen inmates, and at the date of visit there were twelve present. A pleasant play-ground adjoins the house in the rear.

Children under three years of age are not received, and all who are sufficiently advanced attend the public school near by.

A charge of $2.00 a week for board is made in all cases where the relatives or friends are able to assist in the support of the children, but special rates are granted at the discretion of the managers. The Home depends largely for its support upon the gifts of its friends and the charitably disposed people of the city.

THE GILBERT HOME, WINSTED.

MR. AND MRS. DWIGHT S. CASE, *Superintendent and Matron.*

Visited in October, 1895, and September, 1896.

The Home is so named after the donor, the late Mr. W. S. Gilbert, of Winsted, who shortly before his decease, planned a home for children on a liberal scale, and endowed it so generously that the management are in the happy position of having no cause to apprehend any embarrassment from lack of available funds.

The object of the institution is to provide a home where, for a nominal sum per week, parents or friends may board children for such length of time as circumstances may require. In cases where families are broken up and it is not possible to provide home comforts and training, and in cases where daily employment or condition of health prevents mothers from properly caring for their children, relief may be had by temporarily placing them in charge of the Gilbert Home. As inmates they are well trained and kindly cared for, and taught the common English branches. For this service a charge is made of $1.00 a week. A significant feature is that the children thus received are not placed out in families, but are kept at the Home under the assurance that they will be given back to parents or friends whenever it is convenient or possible for the latter to go and claim them.

The spot selected for the site was a piece of high ground in the western part of Winsted. A wooded tract of nineteen acres, with running streams, fruit orchards and shade trees, was purchased for a home lot. A large main building, especially designed for the purpose, was erected on the hillside, and by April 1, 1889, it was completed and ready for inmates. It is solidly built of brick and is designed to accommodate two hundred. The rooms are large and are well lighted and ventilated. Verandas extend from each floor, and the view from these of Winsted and its vicinity covers a wide tract of hills, valleys and meadows. A neat wooden building was also erected by the managers of the Home for hospital purposes, and stands at a short distance from the main building. It contains rooms for isolating cases of contagious diseases, a nurse's room, sun-parlor and all required conveniences.

For several years after the opening of the Home the inmates attended school in a large room leading off from the main dining-room. As the inmates increased the room proved to be too small for the purpose, and a separate school building was therefore erected to meet the needs in this direction. It is a handsome brick structure and is connected with the main building by a covered corridor. In addition to four well-arranged and completely equipped school-rooms, it contains also on the upper floor an attractive hall with a seating capacity for two hundred and fifty, and in the basement separate play-rooms for boys and girls. A special gymnasium, forty by fifty feet in size, has lately been added to the Home's equipment, and is also connected with the covered corridor mentioned.

The Home is conducted on a non-sectarian basis, and there is no restriction in regard to applicants for admission; children may be received from any part of the State. The number present when last visited was 97, in addition to 71 County Home children who are here cared for as described in the chapter on County Temporary Homes. The management is in the hands of a self-perpetuating board of sixteen trustees, and the provisions of the will under which the Home was founded require that, after having defrayed the necessary expenses out of the Home's income, they shall annually, for a period of one hundred years, lay by a fixed sum as an addition to the original endowment fund. The Superintendent and Matron report to the trustees once a month on the working of the Home.

Perfect order and cleanliness prevail in all departments, and the institution throughout bears the marks of conscientious and efficient management. It is a noble charity, and the scope of its usefulness increases year by year.

MIDDLESEX COUNTY ORPHANS' HOME, MIDDLETOWN.

MISS MARY PENNELL, *Matron.*

Visited in April, 1896.

The Home is a private charity under the management of a board of Middletown ladies, and in 1881 received a charter from the State. It occupies a pleasant house at No. 66 Wyllys Avenue and has accommodations for twenty-five inmates.

Dependent and neglected children and those in particular who are too young to be eligible for admission to the County Temporary Homes are received and cared for at the usual rate of $2.00 per week. The management is liberal and children are received from all parts of the State.

Some confusion has arisen from the similarity of its name to that of the Middlesex County Temporary Home at Haddam; the two institutions, however, are entirely distinct and it is believed that the Middletown Home will alter its title in the near future.

THE CONNECTICUT CHILDREN'S AID SOCIETY, HARTFORD.

MISS JOSEPHINE M. GRISWOLD, *Clerk of the Executive Committee.*

Visited in September, 1896.

The Society is a private organization. A petition for a charter was presented to the January, 1893, session of the General Assembly, but failed to receive the legislative approval. Articles of association have recently been filed under the general laws of the State.

Upon the occasion of the visit to the Society's office by a representative of the State Board of Charities, opportunity was offered for an examination of the record books, and it was found that more than one hundred of the children whose names were enrolled had been taken from the various County Homes, forty-eight of them having come from the Home at Warehouse Point.

In this connection, it may be pointed out that the Temporary Home in each county is the shelter established by law for homeless and dependent children. The respective Boards of Management are responsible for the care of the children and for placing them as soon as may be in suitable family homes, and the various town committees visit and report on the children when so placed, as has been stated in the chapter on County Homes. There are in addition special State Agents to each of whom a section of the State is assigned. The Agents act in hearty co-operation with the Boards of Management and town committees in all departments of the work, and preserve in a central office a record of each child who is taken from a County Home and placed in a private family. The records are accessible to all persons who may rightly inspect them. The entire field is thus fully covered and the whole scope of the work is in the hands of responsible State and County officials whose efforts are systematic and are directed solely to the protection of the children committed to their care.

The majority of the children in the County Homes have been committed through the courts; the expenses of their support are paid by the State and they are State wards under the control of legally-appointed authorities until they reach the age of eighteen when, according to the statute, they pass from the guardianship of the Home officials. It is therefore proper and according to law that the care and disposition of the County Home children, i. e. the children of the public institutions, should rest with the County Home authorities and not with the officers of a private organization. The Home authorities are responsible for the welfare of the children whereas the private organization is not. For these and other similar reasons it is manifestly not advisable that an officer of a private organization should be officially connected in any way with the management of one of the County Homes.

In former years when the work was not so fully organized and the distinction between public and private institutions not so generally established, a number of children from the public County Homes were placed out through private agencies including the Children's Aid Society. The results as shown by the records were not satisfactory. There is no reason why practice along this line should continue longer. Greater advantages and better results will be secured if the wards of the County Homes are left strictly in the hands of the properly-constituted and responsible Home authorities.

PUBLIC ACTS OF 1895.

CHAPTER 324.

AN ACT CONCERNING THE ESTABLISHMENT OF PRIVATE ASYLUMS.

No asylum, home, or institution for defective, deformed, or incurable persons shall be established or maintained within the limits of any town without the consent of said town, unless under express legislative authority.

BOARDING OF INFANTS.

THE WAPPING NURSERY,
SOUTH WINDSOR.

Visited by Miss Hall and Mr Kellogg.

The Wapping Nursery was formerly an institution which made a practice of taking young children to board, but owing to the failing strength of the manager, Mrs. Caroline Ayres, the business was discontinued in March, 1896. The house is a wooden structure of medium size, and is situated about a mile north from the Wapping church and four miles from the railway station at Manchester.

The institution was well patronized during the nine years of its existence, and at times sheltered as many as thirteen inmates. Many of the children came from Hartford and quite a number also from towns and cities outside of Connecticut. The usual rate of board was from $1.50 to $2.00 a week. An attempt was made to keep in a record book the name, age, birthplace and parentage of each child received. The record, however, was not complete, and as there were no means of verifying the particulars which were given at the time of a receipt of a child, it is probable that advantage was taken of the opportunity to keep true names and correct dates and figures concealed.

There were six children present in the Nursery when the business was discontinued, of whom three were committed to the Hartford County Temporary Home, one was placed in a family in the town of South Windsor, and the remaining two were adopted into Mrs. Ayres' family.

MAPLEWOOD FARM,

EAST CANAAN.

Visited in 1896.

At the date of visit there were only two children present who were under ten years of age.

The usual rate for boarding children at the Farm is $2.00 per week.

During the latter part of the period in which the number of children under the stipulated age exceeded two, the Farm was visited at regular intervals by a neighbor whom the selectmen of the town appointed for the purpose, and reports were filed with the Town Clerk in accordance with statutory requirements.

In compliance with the provisions of an Act of the last General Assembly, a license to maintain a maternity hospital was obtained from the health officer of the town in June, 1895, but was allowed to expire after a year's duration.

As stated by the managers, it is not their intention to continue this phase of the business.

BOARDING OF INFANTS.

GENERAL STATUTES.

Section 2610. Any person who shall make a business of taking children under ten years of age, other than members of such person's family, to entertain or board, in any number exceeding two in the same house at the same time, shall within three days after the reception, removal, or death of any such child, give written notice thereof to the Selectmen of the town within which such house is situated, specifying the name and age of such child, the place of residence of the parties so undertaking its care, and the birthplace and parentage of said child, if known.

Sec. 2611. Said Selectmen, or some proper person appointed by them, shall visit and inspect such premises as often as once in each month, and within one week after such visit make a written report containing a statement of the number of such children in said house, the number received and removed since the last visit, the number of deaths and the causes thereof, the condition of the premises and of the children, which report, when accepted by said Selectmen, shall be kept on file in the office of the Town Clerk of said town.

Sec. 2612. Such house or premises shall at all hours during the day and before nine o'clock in the evening be open to visits of inspection by any officer or agent of the * * * State Board of Charities provided that such visit be made in company with a selectman of the town in which such house is located, or with some other proper person appointed by the selectmen of such town, etc.

Sec. 2613. Any person violating any provision of the three preceding sections, or refusing admission to any of the persons specified in Section 2612, shall be fined not less than fifty nor more than five hundred dollars, or imprisoned not more than one year, or both.

PUBLIC ACTS OF 1895.

CHAPTER 102.

AN ACT CONCERNING MATERNITY HOSPITALS, AND THE BOARDING OF INFANTS.

SECTION 1. No person shall keep a maternity hospital, or lying-in place, unless such person has previously obtained a license therefor, duly issued by the mayor, or board of health of the city, or health officer of the town wherein such maternity hospital or lying-in place is situated.

SEC. 2. Within six hours after the departure, removal, or withdrawal of any child born at such maternity hospital, or lying-in place, the keeper thereof shall make a record of such departure, removal, or withdrawal of such child, and the names and residences of the persons who took such child, and whatever disposition of such child, or its body, is made, and the place where it is taken and left, which record shall be produced by the keeper or licensee of said hospital, or lying-in place, for inspection by and upon the demand of any person authorized so to do by the mayor or board of health or health officer of the city or town in which such hospital, or lying-in place is located.

SEC. 3. No keeper of any such hospital, or lying-in place, or any of his servants or agents, shall refuse permission to any person, so authorized to make such inspection, to enter such hospital or lying-in place, for the purpose of such inspection, and shall permit such person so authorized, as aforesaid, to inspect such hospital and all its appurtenances for the purpose of detecting any improper treatment of such child.

SEC. 4. Every person so authorized may take and remove any article, which he thinks presents evidence of any crime being committed therein, and deliver the same to the coroner of the county, to be disposed of according to law.

SEC. 5. Any person violating any provision of this act shall be fined not less than fifty, nor more than five hundred dollars, or imprisoned not more than one year, or both.

APPENDIX.

BY-LAWS

OF THE

STATE BOARD OF CHARITIES.

What Officers—Their Election.

SECTION 1. The Board shall have a President, Secretary, and Auditor of Accounts, who shall be elected by the Board in June or July of each year, at a regular meeting, or at a special meeting called for the purpose.

Terms of Office.

They shall hold their offices until the first day of July in the year next succeeding the year of their elections, and until their successors shall be elected, unless they shall sooner die, resign, or be removed by the Board for cause, upon charges and specifications filed by a member of the Board, after reasonable notice thereof, and full hearing thereon before the Board.

Duty of President.

SEC. 2. It shall be the duty of the President to preside at all meetings of the Board.

May Issue Notices of Meetings.

He may issue notices of meetings of the Board, both regular and special, in the manner hereinafter provided.

To Perform His Duties as a Member, Unless—

He shall, unless excused by vote of the Board, do his part of its work as a member thereof, in addition to his duties as its President.

President Pro Tem.

In his absence from any meeting a President *pro tem.* shall be elected.

Duties of the Secretary.

SEC. 3. It shall be the duty of the Secretary to keep a record of the proceedings of the Board; to conduct its correspondence; to prepare its annual reports; to give notice of its regular meetings; to make, at each regular meeting, and at special meetings when called for, a report of his work since the last preceding regular meeting; to inspect, yearly, the

State Almshouse, and all institutions in which the State has beneficiaries; to procure, so far as possible, the reports of Boards of Charities of other States and of National Conferences of Charities and Corrections, and deposit the same in the office of the Board; and, in general, to perform such duties as the Board shall by vote assign to him as its Secretary.

If a Member, to do Duties as Such in Addition—

If he be a member of the Board, he shall do his part of its work as such member, in addition to his work as its Secretary.

Secretary Pro Tem.—His Duties.

In his absence from any meeting a Secretary *pro tem.* shall be elected, who shall make the record of the proceedings at such meeting, and shall transmit the same to the Secretary within three days thereafter.

The President and Secretary to Bring the Petitions of the Board in Certain Cases.

SEC. 4. The authority of the Board, under the fourth section of the Act entitled *An Act to Provide Homes and Care for Dependent and Neglected Children*, to petition for the commitment of children to the Temporary Homes provided for in said act, shall be exercised by its President and Secretary, as its committee, with the full powers of the Board; petitions brought by them shall be signed in the name of the Board by its Secretary, and shall be countersigned by its President.

Duties of the Auditor.

SEC. 5. It shall be the duty of the Auditor to pass upon and audit, and to collect from the State, all accounts of the Board, and of its members and officers, for expenses; and to pay the sums so collected to the persons to whom they shall be due.

To Perform His Duties as a Member, Unless—

He shall, unless excused by the Board, do his part of its work as a member thereof, in addition to his duties as Auditor.

Auditor Pro Tem.

In his absence from any meeting an Auditor *Pro Tem.* may be elected.

Appeal from Auditor.

An appeal may be taken to the Board from any decision of the Auditor.

Regular Meetings, When and Where Held.

SEC. 6. The regular meetings of the Board shall be held at its office, in Hartford, on the first Wednesday of each month.

Notices of Regular Meetings, When and How to be Given—What to Contain.

Notices of regular meetings shall be given to all members of the Board by mail, post-paid, not less than seven days in advance, exclusive of the first and inclusive of the last day; and shall name the day, date, and hour of meeting; and shall mention any matters of special importance to be acted upon thereat, so far as they may be known to the officer giving the notice at the time of issuing the same; and any member intending to bring forward any matter of special importance at any regular meeting shall file with the Secretary written notice of such intention, with a written statement of the particular matter to be so brought up, sufficient to clearly indicate its character and scope, not less than twelve days before such meeting; but nothing contained in this sixth section shall limit the power of the Board to act upon any matter brought before it at a regular meeting.

Special Meetings, by Whom and Where Called—Not to be at Private Residence, Except—

SEC. 7. Special meetings may be called by the President, the Secretary, or any three members of the Board, at the office of the Board, in Hartford, or at any State institution; but they shall not be called at any private residence, except with the written consent of all the members of the Board previously obtained.

Notices of Special Meetings, When and How Given—What to Contain.

Notices of special meetings shall be given to all members of the Board by mail, post-paid, or by telegram, not less than three days in advance, exclusive of the first and inclusive of the last day; and shall name the day, date, hour, and place of meeting; and shall mention the purpose of calling the same.

Limitation of Action At.

No matter not included in the purpose of the meeting, as stated in the notice, shall be acted upon thereat, except by the unanimous consent of all members of the Board, both present and absent.

Quorum.

SEC. 8. Three members of the Board shall constitute a quorum for business at its meetings.

Order of Business.

The order of business shall be as follows:

1. Reading the minutes of the last meeting.

2. Secretary's report of his work since the last regular meeting—at regular meetings only, unless called for.

3. Reports by members of their work since the last regular meeting—at regular meetings only, unless called for—to be made in the order of their appointments; and to be reduced to writing, and filed with the Secretary, when required by the vote of the Board.

4. Unfinished business.

5. New business, including, at regular meetings, assignments of members, or officers, to visitations, required by the statutes, or by the Board, during the month.

PUBLIC ACTS OF 1895.

CHAPTER 317.

AN ACT TO ESTABLISH A STATE REFORMATORY.

SECTION 1. A state reformatory is hereby established to be known as the Connecticut Reformatory.

SEC. 2. There shall be five directors of the Connecticut Reformatory, two of whom may be women. They shall be appointed by the governor by and with the advice and consent of the senate. * * *

SEC. 7. There shall be a woman's department, which shall be known as the Woman's Reformatory; and in said department the officers and employes shall, so far as practicable, be women, and the buildings and grounds of said department shall, so far as practicable, be separate from those occupied by male prisoners.

SEC. 8. All females above the age of sixteen years who shall be convicted of any offense which, under the laws of this state might be punished by imprisonment in a jail, may be committed to the reformatory; and after sufficient accommodations are provided by the directors of the reformatory and proclamation is made to that effect by the governor, no female whom the directors of the reformatory are willing to receive shall be committed to any jail in this state on any criminal process or sentence, unless pending her trial, or temporarily until a convenient opportunity is had for conveying her to the reformatory or the state prison, or by the directors of the reformatory.

SEC. 9. All males over the age of sixteen and under the age of thirty years who shall be convicted of any offense which under the laws of this state might be punished by imprisonment in a jail, may be committed to the reformatory, and after sufficient accommodations are provided by the directors of the reformatory, no male under thirty years of age whom the directors of the reformatory are willing to accept shall be committed to jail unless temporarily until a convenient opportunity is had for conveying him to the reformatory or the state prison, or on civil process, or by the directors of the reformatory. And all persons over thirty years of age twice convicted of any crime or misdemeanor punishable by imprisonment in the common jail may, when convicted a third time for the same offense, be committed to the state reformatory, unless such third offense be by law punishable by imprisonment in the state prison.

SEC. 10. Tramps and habitual drunkards of any age above sixteen years, including any person convicted of drunkenness for the third time within three consecutive years, may be committed to the reformatory.

SEC. 11. When any person is committed to the reformatory, the term of imprisonment shall not be fixed or limited by the court, but it shall in no case exceed the term of five years. * * *

SEC. 14. The directors of the reformatory may release on parole any prisoner, if convinced of his or her probable reformation, under such conditions as they may establish and impose. * * *

SEC. 16. The directors, when convinced of the full reformation of any person committed to the reformatory, and in accordance with the regulations by them established, may grant to such person an absolute discharge from the reformatory.

CHAPTER 256.

AN ACT CONCERNING INSANE PERSONS.

SECTION 2. The jurisdiction of the commitment of an insane person to an asylum shall be vested in the court of probate for the district in which such person resides, or, when his place of residence is unknown, in which he may be at the time of filing the complaint, except in cases where it is otherwise expressly provided by law. Courts of probate shall exercise such jurisdiction only upon written complaint alleging in substance that such person is insane and is a fit subject to be confined in an asylum. Such complaint may be made by any person, and if any insane person shall be at large and shall be dangerous to the community, it shall be the duty of the selectmen of the town in which he resides, or in which he shall be at large, to make such application.

SEC. 3. Except when otherwise specially provided by law, no person shall be committed or admitted to or detained in an asylum without an order of a court of probate, as hereinafter provided; *provided*, that when a person who has suddenly become clearly and violently insane is brought to an asylum chartered by the laws of this state, such person may be received and detained there for not more than forty-eight hours without special order of a court of probate; but in such case the keeper of the asylum shall see that the proper proceedings are forthwith commenced in the probate court.

SEC. 4. Upon such complaint being filed in the probate court, such court shall thereupon assign a time, not later than ten days thereafter, and a place for hearing such complaint, and shall cause reasonable notice thereof to be given to the person alleged to be insane, and to such relative or relatives and friends as it may deem proper; such court may also issue a warrant for the apprehension and bringing before it of the person complained of, and shall see and examine such person, if in its judgment his condition or conduct renders it necessary and proper so to do, or state in its final order why it was not necessary or advisable so to do.

SEC. 6. In addition to such oral testimony as may be offered at such hearing, the court shall require the sworn certificates of at least two reputable physicians, whom it shall find to be graduates of legally organized medical institutions and to have been practitioners of medicine at least three years within this state, and not connected with any asylum nor related by blood or marriage to the complainant nor to the person alleged to be insane, and one of whom shall be selected by the court, to the effect that they have personally examined such person within ten days of such hearing, and that in their opinion such person is insane and a fit subject for confinement in an asylum.

SEC. 7. If on such hearing the court shall find that the person complained of is insane and a fit subject for treatment in an asylum, or that he ought to be confined, it shall make an order for his commitment to an asylum to be named in such order, there to be confined while such insanity continues or until he shall be discharged in due course of law. *

SEC. 19. The keeper of any asylum in this state may receive and detain therein as a patient any person who is desirous of submitting himself to treatment and makes written application therefor, but whose mental condition is not such as to render it legal to grant an order of commitment as an insane person in his case, under the provisions of this act. No such patient shall be detained for more than three days after having given notice in writing of his intention or desire to leave said asylum.

SEC. 20. An attorney at law retained by or on behalf of any patient in any asylum, or any medical practitioner designated by such patient, or by any member of his family, or by a relative or friend of such patient, shall be admitted to visit such patient at all reasonable hours, if in the opinion of the keeper of said asylum such visit would not be injurious to such patient, or if a judge of the superior court first orders in writing that such visit be allowed.

SEC. 21. All persons detained as insane shall at all times be furnished with materials for communicating under seal with any proper person without the asylum, and such communications shall be stamped and mailed daily. Should the patient desire it, all rational communications shall be written at his dictation and duly mailed to any relative or person named by the patient.

SEC. 25. Every keeper of an asylum who shall wilfully violate any of the provisions of sections three, eighteen, nineteen, and twenty of this act shall be guilty of a misdemeanor, and may be punished by a fine not exceeding two hundred dollars, or by imprisonment in a common jail not exceeding one year, or both, at the discretion of the court.

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